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COVER:

U.S. Army soldiers participate in a chemical warfare training exercise. See page 26 (Photo by Richard Bocklet).

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SURVIVALIST DIRECTORY

THIS IS A CONFIDENTIAL listing of survivalists who wish to become known to others of like mind. *American Survival Guide* will accept properly coded mail, and forward it to the coded addressee, without charge. *American Survival Guide* accepts no responsibility for the contents of these confidential survivalist communications:

ASG 0101

Silvertown, Oregon, would like information concerning survival groups in the Salem, Oregon, area and to exchange information and ideas.

ASG 0102

Calgary, Canada, 18-year-old survivalist wishes to contact like-minded individuals (16 to 35) in southern Alberta, eastern British Columbia or western Saskatchewan to form a survival group.

ASG 0103

North America, North American Defense Association seeks new members aged 16 to 65 for the common defense of North America.

ASG 0104

St. Marys, West Virginia, sincere survivalist family man would like to meet others in area with similar non-nomadic attitudes.

ASG 0105

Detroit Lakes, Minnesota, seeking new members for a survival group from the Minnesota, North Dakota and Wisconsin areas. Families as well as singles welcomed, male or female.

ASG 0106

Salisbury, Maryland, dedicated, long-time survivalist wants to contact other survivalists in the area and start or join a group.

ASG 0107

Plymouth, Connecticut, would like to communicate with survivalists who are amateur radio operators interested in a survival radio network.

ASG 0108

San Jose, California, survivalist with retreat looking for others with useable skills in construction, communication, etc.

ASG 0109

Chicago, Illinois, forming survival group. Military, police, medical, electronic backgrounds preferred but not mandatory. Send resume.

ASG 0110

Lewiston, Idaho, would like to contact other survivalists in the Pacific Northwest and California areas.

ASG 0111

Millbrae, California, interested in corresponding with survivalists in northern California and northwestern states to exchange information and form a group.

ASG 0112

Showlow, Arizona, well equipped and trained group seeking 2 new members. Doctor, combat medic, R.N. or civil engineer preferred; will consider others. Must reside in Arizona.

ASG 0113

Snowflake, Arizona, have survivalists looking for groups and groups looking for members. Also holding survival exercise in June 1986. Only residents of Utah, Colorado, Arizona and New Mexico need respond.

ASG 0114

Milot, North Dakota, survivalist with children wants to correspond with family oriented groups or just families in remote, coastal British Columbia or Oregon. Goals: near self-sufficiency and preparing for accidental nuclear disaster.

ASG 0115

San Diego, California, teenage survivalist wishes to contact and/or correspond with other teenage survivalists.

ASG 0116

Philadelphia, Pennsylvania, wish to communicate with and meet survivalists in eastern Pennsylvania and southern New Jersey.

ASG 0117

Carrollton, Texas, ex-GI Nam-era family man would like to hear from others familiar with TX, NM, AZ.

ASG 0118

Bettendorf, Iowa, would like to exchange ideas and correspond with other Iowa survivalists and possibly set up meetings with others in the Bettendorf, Davenport areas.

ASG 0119

Anchorage, Alaska, ex-S.E.A.L. wishes to join or form a survival network, also exchange information.

Continued on page 19

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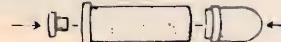
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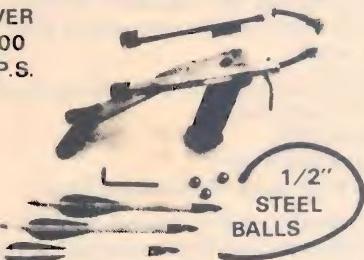
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TO THE POINT

Take care of the sprains, ants, mice and cuts—as the little things can kill you . . .

YOU'RE ALL SET to survive whatever the fates may bring. You have your shelter. You have built and equipped your retreat. You have a three-year supply of food laid by. You have your 4x4 in top running order. Your weapons are ready, and you know how to use them. With all of those major survival steps out of the way, you're ready, come what may.

You just think you're ready. In taking care of the big things, you perhaps have forgotten or neglected the little items. I'll illustrate:

Boots and running shoes—people used to call them sneakers—are vastly different in application. One evening recently, I was called out to do a job that was meant for the wearing of boots, with protection for the feet and ankle support. I was in a hurry, so I went to work in my running shoes. The result was that my exceptionally weak retired parachutist's ankle was sprained. I limped around at my various tasks for three or four days, silently badmouthing myself for not taking the time to change into heavy boots appropriate for the job. It was a little thing, but had I been in a survival situation, I might not have made it with one bum ankle.

Then there were the ants and mice. My wife, Sally, and I paid a visit to our mountain/desert retreat, and discovered that the ants had taken over, literally. A black trail of the insects led across the floor to a food storage cupboard, and directly to a box of instant mashed potato. Almost everything else in the food storage space we had placed in either metal or plastic containers to protect our supplies from just such depredation. We didn't know beforehand that ants seem to enjoy dehydrated potatoes right out of the box. Our mashed potato supply now resides inside a metal .50 caliber ammo box, which is antproof. The ants took from us part of our food that had been stored against crisis times. This was a little thing, yes, but one day, we might need those potatoes in order to continue to exist—no little thing.

The mice entered our dwelling by gnawing through the subfloor. They didn't get

any of our stored food as it was all tightly secured in plastic or metal. However, they shredded my knit winter stocking cap to make a nest, and left odious droppings and urine stains everywhere—kitchen range, counter tops, dining table, bedspread, shower stall, wash basin, etc., etc., etc. Various kinds of baits and traps were brought into play to subdue the pests.

And we had to wash and disinfect everything to allay the possibility of contracting infectious diseases that are borne by mice and the fleas they carry. This was in truth a little thing. It took us a day to clean up, yes, but we had the day. What if we had been pressed by disaster? Who knows?

One last example will more than make the point. At work one day recently, I managed to slice the ball of the thumb on my right hand. I'm tough, macho, this doesn't need disinfectant and a bandage, right? Wrong! In about a day of grubbing around, the cut had become infected, swollen and very tender. As I am right-handed, it put a crimp in my activity. I couldn't even screw in a light bulb without it bringing tears to my eyes. What I should have done is go to the glovebox in my truck, wash the cut with Bactine from the first aid kit there, and then plop a Band-Aid over the laceration. This time, I neglected the little thing, and, for me, it became a big, painful thing for about a week. In a dire circumstance, that thumb would have left me unable to split kindling wood, make repairs to machinery, or engage human predators in a defensive firefight. A sore thumb is a little thing now. In the hard-times future it could mean the difference.

A little thing can kill you—given the correct alignment of time and circumstance.

Survivalists must think of *everything*, large and/or small. Taking care of the big things, the necessities, the knowledge, the skills; the water, the food, the medical supplies and the weapons goes without saying. However, it is necessary also to take care of the little things, lest they bring your well-laid, large-scale survival plans to nought.—Dave Epperson.

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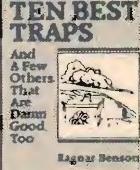


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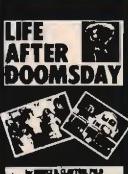
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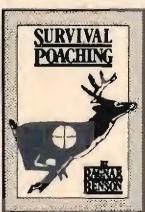
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COMBAT SURVIVAL



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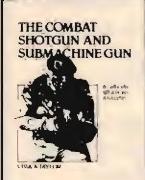
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Military recruiting victory, will to survive, arms control treaty violations, handgun confiscations, nuclear freeze commercials . . .

IN THE JULY 85 edition of *American Survival Guide*, Survival Line reported that the U.S. Justice Department was suing the city of Philadelphia over a city order barring military recruiters from Temple University. Philadelphia instituted the ban when the Philadelphia Human Rights Commission asserted that the U.S. military, in recruiting only heterosexuals, was guilty of discrimination against homosexuals.

In a ruling issued by Judge J. Giles of the Federal District Court in Philadelphia the ban on military recruiting was overturned. Judge Giles said the ban was an improper attempt by local authorities to "regulate directly or indirectly" the activities of the U.S. military. The case was considered very important by the U.S. government because more than 50 other cities and localities have similar anti-discrimination statutes which, if invoked against the military could have seriously affected recruitment goals and national defense.

Will To Survive — Two 26-year-old American women used ingenuity and common sense to survive a 21-day ordeal in a disabled motor boat in the Indian ocean. The women were able to jury-rig a sail from material and clothing and to ration their food and water supplies. Even with careful rationing they ran out of food and for the last 11 days ate only one dab a day each of toothpaste. They travelled more than two hundred miles in their 21-day adventure, and said that they never doubted their survival.

Ostrich Mentality — If you live in California you have just joined a growing club. California is the latest state to have dropped plans for evacuation of citizens in a nuclear crisis. Legislators in Sacramento voted to scrap state plans for emergency evacuations on the grounds that such plans would give hope that nuclear war is survivable.

Treaty Violations — Congressional intelligence sources have confirmed reports of arms control treaty violations by the Soviet Union. One incident cited by an unnamed congressional staff person involved an attempt to deceive the U.S. about the range and accuracy of Soviet SS-19 warheads. The incident occurred in 1979 during the testing phase of the SS-19. U.S.

intelligence satellites photographed the Soviets filling in the impact craters made by SS-19 warheads. The Soviets were then spotted digging duplicate craters in patterns and distances which when analyzed by U.S. intelligence would yield false data as to the true range and accuracy of the SS-19. These operations were carried out during periods of poor visibility, which the Soviets believed would have prevented detection by U.S. satellites.

New Campus Cause — In an effort to undermine the Strategic Defense Initiative, (star wars), proposed by President Reagan, scientists and researchers at many prestigious U.S. universities are signing pledges that they will not engage in any SDI research programs. Over 1,000 scientists have signed the anti-SDI pledges so far.

The Department of Defense has more than 2,500 applications from scientists and universities wishing to take part in SDI research programs.

Handgun Confiscations — Americans travelling to Canada should be aware that the Canadian government is cracking down on people attempting to cross the border while carrying handguns. A U.S. permit is not valid in Canada. The usual penalty is a \$100 fine and confiscation of the weapon. Since 1980 more than 4,000 handguns have been seized by Canadian customs officers at U.S.-Canadian border crossings.

Nuclear Freeze Commercials — Hollywood director Nicholas Meyer who gained prominence with his "The Day After" is at work on a new anti-nuclear project. You will soon be seeing TV commercials by Meyer, which feature well known Hollywood actors and volunteers marching in support of the nuclear freeze movement.

FEMA Booklet — The Federal Emergency Management Administration has just issued a 38-page booklet entitled, "In Time Of Emergency." Contained in the booklet are suggestions for steps you can take to protect yourself in situations ranging from earthquakes to nuclear power plant accidents.

To obtain a copy send 50 cents to: Federal Emergency Management Consumer Information Center (R). Department P, P.O. Box 100, Pueblo Colorado 81002. ●

MAIL CALL.

P1 Magnum Airgun

We wanted to let you know how delighted we were with your article in the July 1985 issue on our P1 Magnum pistol. We would like to point out a misprint in the article, however: the velocity should have been 560, even over 600 feet per second, for top power, making it the most powerful air pistol on the market. Actually, 360 is closer to the firing of the low power setting. If there is any chance of informing your readers of this, it would be most appreciated.

Robert D. Beeman, president
Beeman Precision Arms, Inc.
San Rafael, California

We stand corrected, Mr. Beeman. Thanks for taking the time to point out the error.

Survival Computer Network

Should the opportunity arise, we'd greatly appreciate your mentioning us in the magazine. We need all the exposure we can get as we are concentrating on a fairly small audience as it is. Your help would be much appreciated. The pertinent information is: Survival Communication Forum—The survival based communication system on line 24 hours everyday. Free access to all. Multiple conferences. Private electronic mail. Resource listings. File transfer. On line survival product catalogs. 300 and 1,200 baud. Full duplex. Phone (via modem): (707) 545-0746. Address: 1435 Sebastopol Road, Suite 210, Santa Rosa, CA 95407.

Don C. Kulhba, system operator

Anyone interested, readers?

Hitting Home

I am very pleased with the format of your magazine. Please do not get off the beaten track. There is an awful amount of literal "trash" on the subject of self-reliant "survivalism." Your "To The Point" column in the September issue really hits home. I can not become associated with para-military, radical outcasts who use the guise of "survivalism" as an excuse to rebel, kill, maim and distort issues, thoughts and the real American way of life. I am very well acquainted with the gun movement in Morton Grove. Believe me, people bury weapons in cases like this. They know that somewhere down the line

it will come to protecting one's self and family because the officials and politicians simply are not capable of protecting themselves, much less others. I have been employed by a financial institution for 12 tough years. I can see the reality coming. The FSLIC and FDIC are both broke. The banks are broke. S&Ls are broke, villages and municipalities are broke, etc., etc., etc. If the public thinks that we are not headed for a crash, I hope that they have their assets tied up in bullion! Because at least this way they may be able to barter food and medical supplies when needed.

Name Withheld
LaGrange Park, Illinois

The financial problems you speak of concern all of us. The collapse you foresee could well become a reality. However, this nation has gone through other financial crises, even the great depression, and survived. We are hopeful that the problems facing our financial institutions today can be worked out. Thanks for your support for our denunciation of criminals claiming to be "survivalists."

Prize Giveaways

I am writing regarding your contests such as the Blockbuster Bonanza. Your rules state: "Firearm winners must be 18 years of age or older. NO EXCEPTIONS." Does this mean that if the person to be awarded a firearm is found to be under 18 no one will receive the prize, or can the winner's parents claim the prize for him/her? Being a faithful reader of your magazine for over three years I feel I or any other person under the age of 18 should have the same chance of winning a firearm as anyone else. Also, I was wondering if there is any way of legally getting a blowgun into California. I have been trying to get one for many years but no one is able to ship them to me. I saw your article ("The Jivaro," page 22) on a blowgun in the August 1984 issue but never wrote to ask who you received yours from. If you know of any legal way of getting a blowgun in California please let me know.

Robert Morris
Riverside, California

Sorry, Bob, but the answer is "no" to both your queries. This magazine's contest rules state that firearm prize winners must be 18 years old or older and U.S. citizens. The only way a parent can collect such a prize is to be the winner himself or herself.

Continued on page 20

KATADYN POCKET FILTER



The Katadyn Pocket Filter is a Swiss-made device that clarifies raw water and instantly removes all harmful cocci, bacteria, protozoa, fungi, cysts including Giardia and parasites by microfiltration through a 0.2 micron microporous ceramic filter element. No chemicals are added or removed. A silver lining fixed to the inside of the ceramic element prevents the growth of algae or bacteria into the surface, keeping it free from contamination. Will operate many years with daily use. Full flow is quickly restored by wiping or brushing off the filter element and can be repeated hundreds of times before replacement is necessary.

The Pocket Filter is standard issue with the International Red Cross and NATO. Essential equipment for backpackers, globetrotters and survival kits. Built-in pump produces 1 quart/minute of safe drinking water. Includes carrying case, cleaning brush and instructions. 10" long, 2" diameter, 23 ounces. Full money-back guarantee.



PROVISIONS UNLIMITED
P.O. Box 456, Dept. 400
Oakland, Maine 04963
(207) 465-3212

Katadyn Pocket Filters at \$150.00 each postpaid.

Check or money order enclosed
 VISA MasterCard

Card # _____

Exp. Date _____

Signature _____

Name _____

Address _____

City _____

State _____ Zip _____

Send free catalogue of high quality self-reliance products.

SI

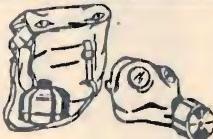
SURVIVAL, INC.

THE LEADER IN SURVIVAL FOOD & EQUIPMENT FOR OVER 15 YEARS

SI

Since we started over 16 years ago, many have tried to duplicate or copy our success, but we continue to be the largest supplier of emergency food and equipment in the United States. Why are we still the leader? Because we offer the best and widest selection of food and equipment, low prices and just as important—quality service. We stock over \$1,000,000 of merchandise for immediate filling of all orders. So if you want to make sure you get what you order—you will buy from the leader. For those in the area we have a complete showroom for your inspection. PRICES GOOD UNTIL JANUARY 31, 1986.

Israeli Gas Mask Special CBW EFFECTIVE



We decided to put together a package for the highly effective new Israeli Civilian Gas Masks that we have been offering for the past 15 months. We wanted something that was easy to pack and easy to carry. So we have taken a mask which comes with one canister and added a second canister and put them in a heavy-duty used US mask bag. The bag features three small outside pockets that can hold other items such as water tablets, matches, knife, etc. It also has a nice carrying strap that is made so it will not break easily. The bag secures the mask and canisters with two easy-to-open sprung snaps.

The Israeli Masks are not only new (meaning they have not been used) but also are of recent manufacture. Made for the Israeli population to protect against gas attacks, they will handle all common battlefield gases including CBW gases. One important feature is that the filter can be changed in seconds without removing the mask. The canisters have no listed limit to shelf life. In talking to those who seem to know, if the protecting seals are not removed they should store indefinitely. Also the filters are readily available at this time. #C/0589

Bag, Mask and 2 Canisters

\$ 29.95 + 3.00 S&H

2 Sets \$ 60.00 ppd.

Bag Alone #6479 \$ 6.95 ppd.

Extra Canisters #6477 \$ 9.50 ppd.

Mask with 1 Canister

#6476 \$ 19.50 ppd.

NEW U.S. MILITARY RAINCOAT



Brand new military issue surplus—they have changed the button arrangement on the new ones. Fully rainproof, lightweight, nylon bonded to rubber raincoat will last years. Overlap buttoned front and two nice size pockets. Normal military olive in basic trenchcoat styling. Available in Small, Medium and Large only. Cost the government \$38 each in huge quantities. #0363

\$ 18.50 + 2.50 S&H

2 for \$ 37.00 ppd. 48 states

WET WEATHER PROTECTION



TWO PIECE RAIN SUIT

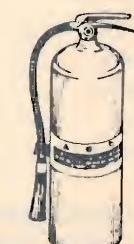
Made of bright yellow heavy-duty, double-layered, heat-bonded poly/vinyl, this suit will keep the rain off season after season. Leak proof ventilation across back and under arms. Quality elasticized waist in pants, draw strings on hood and waist of top, and a fine quality zipper front. Available in Small, Medium, Large and Extra Large. #0361

\$ 9.95 + 2.50 S&H

2 Suits \$ 21.00 ppd. 48 states

LET'S BE SENSIBLE

Every day a number of people lose their homes, their cars, and sometimes their lives because they have not taken the precaution of having adequate working fire extinguishers available.



Model No. 2

Halon 1211 is the finest in fire fighting equipment. This 2½ lb. model is excellent for Class "B" (gas, oil, paints) and Class "C" (electrical) fires. It leaves no residue, does not interfere with electrical equipment, and can be used in kitchens without harming food. Perfect for your home or business. Includes bracket for wall mounting. The right size for your kitchen, car or camper. #6952

reg. \$ 64.50 + 2.75 S&H

Special \$ 39.95 + 2.75 S&H

2 for \$ 82.50 ppd. 48 states

Model No. 5

5 Pound Halon 1211

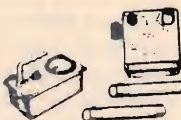
Good size for kitchen and office. Stops electrical and oil fires fast. A must around electronic equipment. Big enough to handle a good size fire. #6956

reg. \$ 96.00 + 4.50 S&H

Special \$ 59.95 + 4.50 S&H

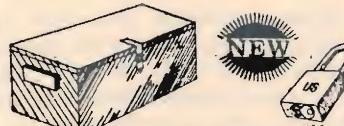
2 for \$ 125.00 ppd. 48 states

Radiation Exposure Kit



Features our certified and calibrated surplus Civil Defense Radiation Meter, newly manufactured military spec dosimeter charger, two certified and calibrated surplus quartz dosimeters, and the book *Nuclear War Survival Guide*. All the equipment is guaranteed to be within original specification limits. If new this set would sell for \$895.00. Our regular single item price is \$355.00.

Special \$ 239.00 ppd. 48 states



Genuine G.I. Footlocker

An excellent inexpensive way to store your belongings safely. Made to G.I. specs by current military contractor this makes a great tool box, transport box or whatever you need. Measures 33" x 17" x 13". Comes complete with a removable tray. The metal hasp in the front will accommodate one of our genuine G.I. padlocks to keep your belongings secure. Box is all wood and painted green with carrying handles. #3271

Special \$ 39.95 + 10.50 S&H

ORIGINAL FOOTLOCKER PADLOCK: Military padlocks for the footlockers. These are high quality locks that would sell for about \$15.00 if they were commercial and come with two keys. #3272

\$ 8.95 ppd. 48 states

Purchased with Footlocker \$ 5.50 ppd.

Made To Do The Job



The I, II, III of Under-The-Sink Water Washers

Don't you think your family should have high quality water for better health—and at less than two cents per gallon!

The Model I has the proven EPA bacteriostatic filter that removes unpleasant tastes, odors, color, sediment, chlorine, etc. Fresh water at the rate of one gallon a minute.

The Model II Commercial unit adds a full-size in-line five micron prefilter to remove more effectively dirt, sediment and rust. Then the same excellent filter that is in the Model I takes over and cleans the water up. Since the five micron filter traps most of the debris, this means the main filter lasts longer.

The Model III or custom unit adds a second bacteriostatic filter in-line and this means even cleaner and clearer water—without reducing flow so that you get the finest water.

As we said at first, the Model I has proven itself to be a winner and is the right filter for most homes. But if you have a real water problem, sensitive tastes, or just want the best possible filter, then you may want to install the Model II or III.

Model I #4016 reg. \$ 209.00 + 5.00 S&H

Special \$ 99.50 + 5.00 S&H

Extra Model I Filter #4017 \$ 45.00 ppd.

Model II #4020 reg. \$ 309.00 + 6.00 S&H

Special \$ 155.00 + 6.00 S&H

Extra Model II Filter Sets #4021 \$ 49.95 ppd.

5 Micron Preffilter #4018 \$ 9.95 ppd.

Model III #4025 reg. \$ 449.50 + 7.50 S&H

Special \$ 249.95 + 7.50 S&H

Extra Model III Filter Sets #4026 \$ 89.95 ppd.

5 Micron Preffilter #4018 \$ 9.95 ppd.

POCKET PURIFIER

A Portable Purifier

That Really Works

This is the only portable purifier that I have found that the EPA will allow to use the word "Purifier" in its name. All others can only say "Filter"—this means that the Pocket Purifier will meet the very stringent tests that the EPA insists on conducting. Others have an EPA number, but only the Pocket Purifier also cleared to use the name. This amazing little purifier will clean up to 400 gallons of stream and lake water. It is only ½" in diameter and 7¾" long and comes in its own carrying case tube. All this and it only weighs about 3 ounces. #4008

\$ 12.95 + 1.45 S&H

Special 2 Purifiers \$ 18.50 ppd.

Model No. 9

9 Pound Halon 1211

If your budget can afford it, you should have one of these in the home. It will handle all types of fire—including wood and cloth. If you have a business with electronic equipment and valuable records, it is one of the first things you should have. #5959

Special \$ 119.95 + 6.95 S&H

2 for \$ 245.00 ppd. 48 states

BEST BUY!

All Three Extinguishers

#C/5951 reg. \$ 304.95 + 10.00 S&H

Special \$ 199.00 ppd. 48 states

SI

SURVIVAL, INC.

THE LEADER IN SURVIVAL FOOD
& EQUIPMENT FOR OVER 15 YEARS

SI

No Fire, No Pots, No Problems



Zesto Therm

Piping Hot Retorts Without A Flame

Simply put your retort food pouch along with one energy packet in the specially designed thermally insulated soft pack container and add one-half cup water. This will heat your food to 75°F in just 10 minutes. The energy packs can be used only once. The soft pack container will last for years and years and comes in two styles. The Side Kik can be worn on your belt and will heat one pouch. Measures 8" x 9½" x 1". The Soft Pack will heat up to four 4-oz. retort pouches. It measures 8" x 9½" and is four inches tall. The Zesto Therm system is excellent for preparing almost any food that can be heated or cooked by steam. The main thing to remember is you don't put the food in the water that is reacting with the energy pack, but place the container directly on the energy pack. This is the perfect way to heat retorts or prepackaged foods. As a survivalist I was very interested in the fact that the condition of the water mixed with the packet doesn't matter, which means you can use water from almost any source, including urine. Preparation and cooking hints included.

Soft Pack with 10 Energy Packs
#9970 reg. \$42.50 + 3.50 S&H
Special \$34.95 + 3.50 S&H
Side Kik with 10 Energy Packs
#9971 reg. \$39.95 + 3.50 S&H
Special \$32.95 + 3.50 S&H
Extra Energy Packs (5 Per Pack)
#9972 \$6.25 + 1.55 S&H
Cooking Trays
#9973 \$2.50 ppd. 48 states

FREEZE DRIED VEGETABLES

Here is an excellent case of six high-quality freeze dried vegetables in heavy-duty No. 10 cans. All items need only boiling water to prepare—the potatoes can be eaten as a snack right from the can. Case includes two cans hash browns, two cans peas, one can corn and one can green beans. The retail value of this case is \$105.00. #C/0594

Special \$35.00 + 8.75 S&H

SAVE 75%

Beef, Beef and Beef

Save 75% on Real Freeze Dried Meat

About 70% of our meat orders are for beef products, so here is the best deal on beef around. All of these products are military cosmetic rejects—they just do not meet the original contract limits—but are top quality beef for storage. The steaks are too red, the patties are broken, and the ground beef is too lean. You get two No. 10 cans of tenderized steak, three cans of hamburger patties, one can of ground beef. That is about 32 pounds of ready to eat steak. Packed in nitrogen for longest possible storage.

#C/0380 reg. if first quality \$301.00 + 8.50 S&H
Special \$75.00 + 8.50 S&H
Limit 6 Per Customer

18-Gallon

High Quality Barrels

Used once—for mushrooms!

These are made of ¼" high impact plastic and they are food grade so you can store grains, beans, or water in them. They have a 10" screw-on lid with an air-tight seal due to a neoprene gasket. 23" high and 16" in diameter and includes two heavy-duty handles for easy carrying. Good also for burying (even weapons) if care is taken in sealing and packaging. New ones cost about \$29.00 plus shipping—but these are carefully washed and you can get them as low as \$14.00 delivered to your door. They are shipped from Pennsylvania. #0218

18-Gallon Barrel \$17.50 + 4.50 S&H
5 Barrels \$96.00 ppd. 48 states
10 Barrels \$169.00 ppd. 48 states
20 Barrels \$320.00 ppd. 48 states
100 Barrels \$1400.00 ppd. 48 states

Grains

Water

Equipment



MILITARY ISSUE

U.S. Contract

MRE Retort Meats

As Low As 80¢ Per Pouch



Just in, these new meat products were produced for the 1984 contract. Includes Beef in Spice Sauce, Ground Beef Minni-Cotta, Beef with Gravy, Ham Slice and two others. Shelf life 5-10 years without refrigeration. Takes only minutes in boiling water or against engine block to be ready. We pack them 12 to a case—2 of each entree. Just like the army—no choices. Great for hunting, fishing, camping or emergencies. #R0076

12 Pouches (2@) \$16.80 + 3.50 S&H
36 Pouches (6@) \$42.00 + 5.25 S&H
72 Pouches (12@) \$72.00 + 10.50 S&H
432 Pouches (72@) \$349.00 freight collect

MRE BAKED GOODS

Another overrun item. The cookies, cakes and brownies are moist and are excellent for packpacking, hunting or everyday eating. All come packed in heavy aluminum pouches and will store for years. Good emergency energy source.

"Gorilla" Cookies: Delicious chocolate covered cookies. 2 per pouch. #R100

10 Packs \$5.50 ppd.
20 Packs \$9.00 ppd. 100 Packs \$45.00 ppd.

Chocolate Nut Brownies: Nothing more needs to be said. I think these are a super treat. #R101

10 Packs \$6.50 ppd.

20 Packs \$11.00 ppd. 100 Packs \$52.00 ppd.

MRE Cakes: Very moist and tasty. Chocolate Nut, Pineapple Nut and Orange Nut. Offered in evenly mixed assortments. #R102

6 Cakes \$8.00 ppd.

12 Cakes \$15.00 ppd. 36 Cakes \$36.00 ppd.

Bakery Sample Pack: For those who want to know what we are talking about—one of each cake, 2 brownies, 2 packs of cookies. #R1010

\$6.75 ppd.

2 Packs \$10.00 ppd.

MILITARY FRUIT RATIONS

Strawberry

These are nothing but real strawberries in light syrup that are freeze dried and put in heavy, olive drab pouches. They will store for a minimum of seven years—and probably a lot longer. We pack them in 25 bar packs and the price is right—each 25 bars contain as much strawberries as a \$28.50 can from a leading manufacturer of freeze dried fruits. We even send a couple of ideas on how to use the bars that customers have told us work. #M112

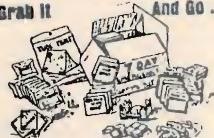
Special 25 Bars \$9.50 + 1.55 S&H

50 Bars \$17.50 + 2.00 S&H

225 Bars \$60.00 + 8.50 S&H

NEW

Emergency
7 Day Supply



This is a newly designed supply that came out of the chaos of the disaster in Mexico. I felt a need for an inexpensive highly-portable package that would provide a minimum supply of food, light, heat and shelter for one person for seven days or two people for three days. The supply includes: high quality tube tent, two space blankets, stove and fuel, eight candles (about 40 hours of light), water tablets, waterproof matches, first aid kit and a high quality supply of military food pouches. The food supply contains: 21 retort pouches of meat entrees, 14 cakes, 14 fruit bars, 7 beans with tomato sauce, 7 candy bars and 7 heavy plastic spoons. All these products are fully cooked. All you need to add from the store is a good transistor radio and some water and you can be prepared for the 72 hours it takes to get most government emergency programs in place. #C/0591

Special \$49.95 + 9.50 S&H
3 Supplies \$145.00 + 15.00 S&H

MARINE COMBAT KNIFE

Made to U.S. Government specifications. This 12 inch knife features 7 inch carbon steel with blood groove blade that has a black phosphorous coating to eliminate reflection. Stained brown leather handle and rich leather reinforced sheath. #Z860 reg. \$22.50 + 1.50 S&H

Special \$17.50 + 1.50 S&H
3 Knives \$50.00 ppd. 48 states

MAG-LITE

MINI-MAG

High Quality aluminum light that is only 5½" long and 3/4" in diameter. The 1" head contains a bright Krypton bulb that can be focused from bright spot to flood. Uses 2 AA batteries (not included).

Special \$12.95 + 1.75 S&H
2 for \$19.95 + 2.00 S&H

SI TOOL



Here is a lightweight, yet sturdy multi-use tool that we think should be in every vehicle and every get away bag. There are 14 different tools incorporated in one: shovel, hatchet, hammer, rake, saw, wrench, mattock, nail remover, bottle opener, slicing knife, can opener, can piercer, fish scaler, philips screwdriver, and regular screw driver. The blade is stainless steel and the hollow handle is steel and high-impact plastic. Carrying case will go on your belt. Weights less than 1½ pounds.

#3801 reg. \$23.50 + 1.95 S&H
Special \$18.50 + 1.95 S&H
3 Tools \$48.00 ppd. 48 states

Survival, Inc. (SI)

2322 Artesia Blvd.
Redondo Beach, CA 90278
(213) 318-2575

Good Until JAN 31, 1986

Send \$2 for
48 page Catalog

Outside California call TOLL FREE for credit card orders: (800) 533-7415.

Please send me the following:

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Card No. _____ Subtotal _____

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PHONE _____ TOTAL _____

NEW PRODUCTS



Survivor Pak

Survivor Industries, Inc., has introduced a series of emergency preparedness kits containing food, water and tools, emergency lighting and sanitation supplies. The PSP-01 Survivor Pak will sustain one person for up to six days or two persons for three days outdoors. Weighing 22 ounces with a suggested retail price of \$165, the PSP-01 contains more than 100 items and is highly portable for use in home, auto, office, marine or school. A second unit, the PSP-02 is intended to sustain up to five persons for six days in indoor environments, such as a home or other emergency shelter. Its price is \$120.90. A third unit, the PSP-03, is a mini-unit designed to sustain one person outdoors or indoors for up to three days. Its suggested retail price is \$29.99. For more information call or write Survivor Industries, Inc., 5310-C Derry Ave., Dept. ASG, Agoura Hills, CA 91301; phone (818) 889-7101.



Mega Dart Stock

Mega Dart Incorporated, Dept. ASG, 11900 Montana Ave., El Paso, TX 79936, phone: (915) 593-1115, has introduced the MEGA DART MX-7 Power Dart Gun for target shooting and hunting small game.

The weapon features bolt action loading, use of slingshot-like power bands for propelling steel .40 caliber darts that are supplied with removable hunting tips, and a sight tube for maximum accuracy. The bands, when released from the cocked position, drive a piston which forces air into the barrel behind the dart, firing the dart in blowgun fashion to ranges up to 50 yards or more. The darts fly at a velocity of more than 720 feet per second. Now available is the MX-7SS Shoulder Stock for increased gun control and accuracy. The stock is easily attached to all existing MX-7 Power Dart Guns and is constructed of nonreflective, black-finished steel rod. The Power Dart Gun carries a suggested retail price of \$89.95 and the stock's suggested price is \$19.95. Both are available at sporting goods stores.



Survival Unit

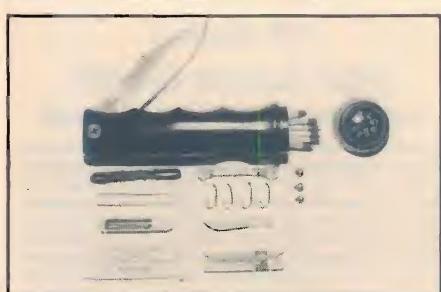
The Ultimate Survival Unit, SU-A1, from Southern Survival, Dept. ASG, P.O. Box 238, Waveland, MS 39576, could make the difference between life or death in an emergency situation. Designed, developed and field tested by a certified disaster survival instructor, the SU-A1 includes a survival knife, canteen, first aid kit, food and an assortment of other gear, all on a military type pistol belt. The unit, which sells for \$49.95, contains 101 items which, if sold separately, would cost more than \$100. Included in this unit, Stock No. 1001, is the following: survival knife with compass and sheath, razor blade knife, wire saws, auto fisher, 30-piece fishing kit, 55 yards of fishing line, fishing floats, Break-Free, propane lighter, match with striker kit, water purification tablets,

18-piece first aid kit, 30 feet of nylon string, 50 feet of nylon rope, salt pack, G.I.-style whistle, pistol belt, canteen with holder, M16 ammo case, M1 ammo case, dehydrated meals, sewing needles, knife, fork and spoon, and waterproof container. A 60-piece, condensed version of the unit, Stock No. 1002, is also available for \$29.95. This unit includes survival knife with compass, 18-piece first aid kit, and fishing kit. Orders may be paid by VISA, MasterCard or American Express (specify account number, expiration date and signature). Mississippi residents add state tax.



Combat Accessory

KHK Productions of Tucson, Arizona, introduces a mounting lug that enables the owner of a 12 gauge shotgun to affix an M16 (M7 by military designation) bayonet onto the business end. This precision machined steel bayonet lug and complete, illustrated mounting instructions can be ordered for \$14.95 from KHK Productions, Dept. ASG, P.O. Box 2427, Tucson, AZ 85701.



Folding Lifeknife

Billed as "the world's first folding hollow handle knife," the Folding Lifeknife's 3½-

inch lockback blade is heat treated to Rockwell Hardness 57, is razor sharp and has a serrated back edge. The drop point blade locks back into a contoured DuPont Zytel hollow handle that is engraved with Morse Code and International Ground-to-Air Rescue Signals to provide a non-slip textured grip. The handle is divided into two compartments separated by the lockback blade. One compartment contains an emergency first aid kit with suture, scalpel, disinfectant and butterfly bandages. The other compartment contains an emergency survival kit with matches, hooks, line, sinkers, snare/utility wire—or any other gear you may want to store. The waterproof handle is sealed by a precision luminous liquid filled compass. Included with knife is a black Cordura nylon belt pouch. Suggested retail is \$29.95. The Folding Lifeknife is available directly from Lifeknife, Inc., P.O. Box 711ASG, Santa Monica, CA 90406; phone (213) 821-6192.



Miracle Cloth

Miracle Cloth, a chemically impregnated cloth that quickly and easily cleans, polishes and wax protects any surface, has been developed by two St. Louis men. Miracle Cloth cleans and renews any surface of wood, metal, silverware, porcelain, tile, enamel or auto body paint. Miracle Cloth removes rust, corrosion, spots and stains. It also removes water stains on wood or metal. Miracle Cloth is available for \$2.98 each from RBS Industries, Inc., Dept. ASG, 1312 Washington Ave., St. Louis, MO 63103; phone (314) 241-8464. The firm will send you a free sample if you request it and send \$1 for postage and handling.



Parellex X-Mas Catalog

The Parellex 48-page full color 1985 Christmas catalog contains everything you need to outfit yourself for your next hunting or camping trip. Since this magazine goes on sale approximately Dec. 1, there's still time to browse this catalog for holiday gift ideas. It features hundreds of items for the hunter, shooter, camper, outdoorsman, survivalist. Tents, clothing, military surplus, shooting accessories, optics, knives, personal defense products and much, much more. To order the catalog write Parellex Corp. Dept. ASG, 1090 Fargo, Elk Grove Village, IL 60007, or call toll free: (800) 323-3233.



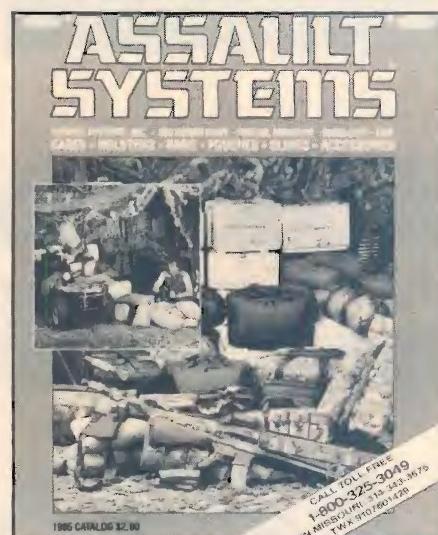
Bolle Eyewear

Brigade Quartermasters, Ltd., has been named exclusive U.S. institutional distributor for protective eyeglasses from Bolle of France. Brigade Quartermasters is a leading survival mail order firm. Bolle lenses are made of polycarbonate with Irex 100. This material blocks 100 percent of the sun's ultraviolet and infrared rays and is shatterproof. Bolle eyewear is known the world over for stylish looks as well. The Irex 100 absorber was originally developed for use by NASA astronauts. The lenses, one third lighter than glass, are mounted in nylon frames. Brigade Quartermasters carries a variety of Bolle styles. For more information contact Brigade Quartermasters, Ltd., Dept. 31P, 266 Roswell Street, Marietta, GA 30060; phone (404) 428-1234.



Holly Hydro Heater

Solar Electric Engineering, Inc., introduces the Holly Hydro Heater, a stainless steel water jacket that delivers more cost effective hot water than from any wood stove or fireplace. The Holly is used with a solar system. The water heater can pay for itself within three years. The unit comes with a 110-volt pump, controller, pressure/temperature, check and tempering valves. The entire package can be ordered directly from SEE for \$243. For more information, contact Solar Electric Engineering, Dept. ASG, 405 East "D" Street, Petaluma, CA 94952; phone (707) 765-1986.



Assault Systems Catalog

Assault Systems 1985 full color 40-page catalog containing exclusively designed, unconditionally guaranteed products for the firearms user and enthusiast is available for \$2 from Assault Systems in St. Louis. The catalog has more than 250 items including cases, holsters, gear bags and accessories. Write or call Assault Systems, Dept. ASG, 869 Horan Drive, St. Louis, MO 63026; phone (800) 325-3049.

BOOK REVIEWS

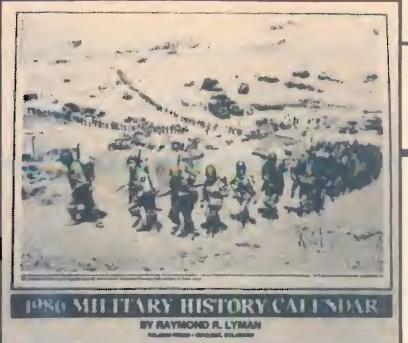
RECOVERING FROM CATASTROPHES

Federal Disaster Relief Policy and Politics

PETER J. MAY

Recovering From Catastrophes: Federal Disaster Relief Policy and Politics, by Peter J. May; Greenwood Press, 88 Post Road West, Box 5007, Westport, CT 06881; (202) 226-3571; 186 pages, hardcover; \$35.

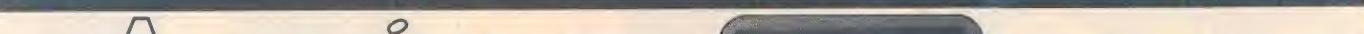
Hundreds of natural disasters—hurricanes, tornadoes, earthquakes, floods—strike the United States each year causing billions of dollars in damages. This book focuses on the continuing public policy debate regarding the role the federal government in providing disaster relief and preventing future disaster losses. The author, an assistant professor of political science and public affairs at the University of Washington in Seattle, examines the evolution of federal disaster relief policy. He offers an understanding of issues likely to be involved in future policy deliberations. Local, state and federal government conflicts are illustrated in a case study of the Mount St. Helens volcano eruption. May also discusses the economic considerations and future directions for federal disaster relief policy. The book is intended to be useful to public officials, policy analysts useful to public officials, policy analysts and political scientists but can also be used as source material for students of government and politics.



1986 Military History Calendar, by Raymond R. Lyman; Paladin Press, Dept. ASG, P.O. Box 1307, Boulder, CO 80306; phone (303) 443-7250; \$8.95 plus \$3 postage and handling. **1986 Ninja Calendar**; Paladin Press, Dept. ASG, P.O. Box 1307, Boulder, CO 80306; phone (303) 443-7250; \$7.95 plus \$3 postage and handling.

Both calendars feature an assortment of large glossy photographs on heavy stock. The military history calendar is packed with fascinating bits of warfare history. Next to each day on the calendar is reference, along with the year involved, to a particular battle or event in military actions dating from the 1800s. Each picture is accompanied by a caption explaining it. Pictured are military actions from around the world and ranging from the early 1800s through the U.S. invasion of Grenada. These photos are drawn from official sources. The Ninja calendar depicts each month with a large picture of a different Ninja fighting scene. Ninja martial arts weapons and tactics are shown and explained along with Ninja history.

Continued on page 16



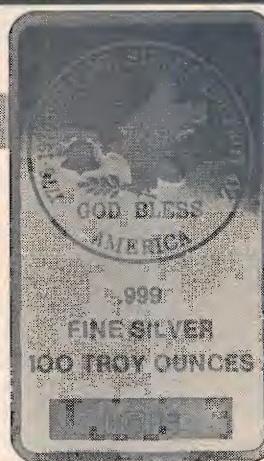
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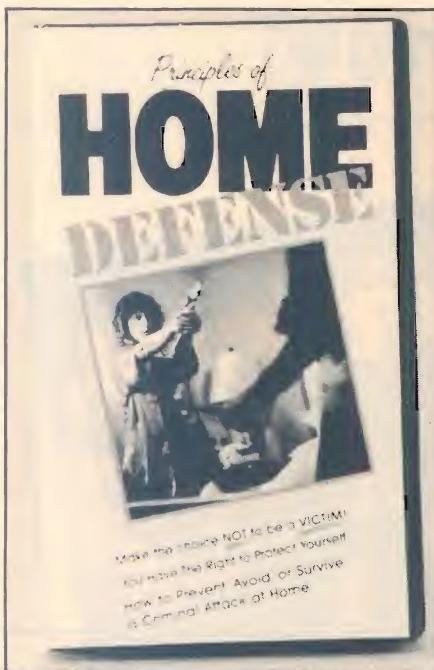
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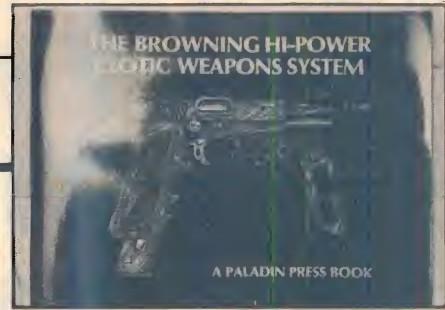
BOOK REVIEWS

Continued from page 14



Principles of Home Defense, a home video tape program; Wild Wing Productions, 7240 Valjean Ave., Van Nuys, CA 91406; (818) 994-4955 or 994-4956; \$49.95.

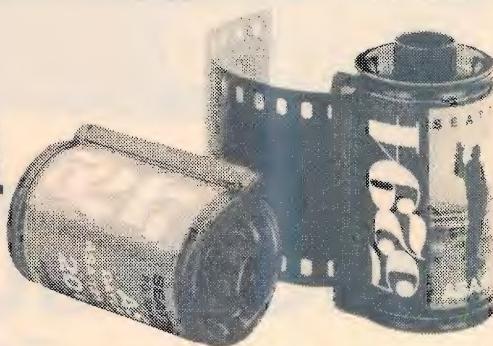
This is an educational film addressing the issues of home security and self-reliance. The format is a series of scenarios in which a character is confronted with a criminal attack. These include a single woman living alone, a mother and son home alone, a single mother and daughter and a family situation. The narrator exposes the rights and wrongs of each event and stresses the importance of awareness, positive mental attitudes and behavior. Discussed is the victim mentality vis-a-vis the survival mentality. The program supports the evidence that criminals seek the easy, careless, vulnerable target and suggests a procedure for creating a home defense plan on a par with a fire or other emergency. This tape would be very useful in teaching family members to protect themselves.



The Browning Hi-Power Exotic Weapons System, a Paladin Press book; Paladin Press, Dept. ASG, P.O. Box 1307, Boulder, CO 80306; softcover, 72 pages; \$12 plus \$3 postage and handling.

This book is presented for historical and reference purposes only. It provides detailed and well illustrated explanation of how the famous Browning Hi-Power 9mm Parabellum pistol can be converted to selective and full-auto fire. Two methods can be employed to convert the weapon to full-auto. One requires hand building of two small parts. The other incorporates a detachable fire-selector unit. Also included are instructions for making a removable folding front grip for better control during automatic firing. Black and white photographs and full-scale templates illustrate the book. Test-firing procedures are outlined for both conversion systems.

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Staff Report

TIRED OF LYING in the dirt or shooting over the hood of your car every time you want to check the accuracy of a new load or gun? This is something we have all experienced at one time or another and is certainly a situation most of us would like an alternative to.

Well, there is an answer to the aforementioned dilemma and it comes in the shape of a completely portable shooting bench from TRC, (The Rickman Company) in Bonita, California. Designed by shooters for shooters the TRC bench combines the obvious benefits of portability with comfort needed for accuracy testing.

The TRC shooting bench features all steel construction with a baked-on weather-proof finish, total weight of only 26 pounds and secure carrying handle. When folded, the bench is easily carried in the car trunk or stored just about anywhere. Ready to shoot? Simply twist the securing knob, swivel legs, seat and bench top into position and fit lower brace. Instantly you have a stable and extremely comfortable shooting bench. We might note here, that the TRC bench is sturdy enough to be used as a base for your reloading press. Another feature worth note is the availability of units for left- or right-handed shooters.

TRC's portable shooting bench is a necessity for those of us who don't have ready access to a well equipped shooting facility. The portability and convenience of this unit allows you to "shoot for group" virtually anywhere in comfort.

The Rickman Company is currently offering the portable shooting bench for \$99.95. If you would like further information or would like to order one of these shooting conveniences, write to, TRC, Dept. ASG, PO Box 249, Bonita, CA 92002. •



LEFT—TRC's portable shooting bench transports easily, weighing in at 26 pounds.

BELLOW—All steel construction and a baked-on weatherproof finish are standard features.



RIGHT—The top shelf can be ordered to accommodate left- or right-hand shooters.



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SURVIVALIST DIRECTORY

Continued from page 5

ASG 0120
Chatham, Canada, would like to correspond with survivalists in southwestern Ontario.

ASG 0121
Thousand Oaks, California, wish to contact other survivalists in the Ventura County area.

ASG 0122
Santa Cruz, California, director of national survivalist network seeks communications with other survivalists and like-minded individuals.

ASG 0123
Ragland, West Virginia, young woman dedicated to survivalism would like to hear from others who feel the same.

ASG 0124
Spanaway, Washington, interested in finding or starting a survival group in the Olympia/Tacoma area and in corresponding with survivalists there. No neo-Nazis, gun store commandos or kooks.

ASG 0125
Maple Ridge, British Columbia, looking for members to start a self-reliant group in the Maple Ridge area.

ASG 0126
Santee, California, would like to share and expand upon 10 years of experience in desert survival, Navy salvage and first aid. Wish contact with groups or individuals in southern California.

ASG 0127
Vancouver, British Columbia, interested in long-term, self-sustaining, self-reliant survivalism. Wish to contact like-minded people and/or join a group in the lower mainland area.

ASG 0128
Hagerman, Idaho, single survivalist wishes to make contacts with substantially survival-oriented persons.

ASG 0129
Anza, California, want to exchange ideas and correspond with other survivalists.

ASG 0130
Rolo, Italy, desire to exchange information on all aspects of survival with American survivalists.

ASG 0131
Cleveland, England, would like to team up with survivalists in the Cleveland/Dorham/North Yorkshire area of England.

ASG 0132
Oakwood, Ohio, 32-year-old Ohio man looking to form 5 to 10-person team to practice and learn survival skills — climbing, weapons, living off the land, etc. No racists, cult members or trigger-happy idiots.

ASG 0133
Eugene, Oregon, single male, 29, ex-police officer, extensive small arms background, former department rangemaster and weapons specialist, partially EMT-trained, seeks to form family oriented survival group, or contact existing group, in western Oregon.

ASG 0134
Lexington, Kentucky, desires contact with any survivalist or to join a survival group in Kentucky who are patriots and believe in teamwork.

Address response letters as follows:

American Survival Guide
ASG 0000 (Code Number, As Above)
2145 West La Palma Avenue
Anaheim, CA 92801

Your letters will be forwarded to persons listed within two days of receipt. *American Survival Guide* accepts no responsibility for loss or delay of inquiry letters. Contact letters that do not carry the appropriate code number will be discarded.

Those who wish to be added to the directory listing, please send names and addresses to *American Survival Guide*, 2145 West La Palma Avenue, Anaheim, CA 92801. The listing is free.



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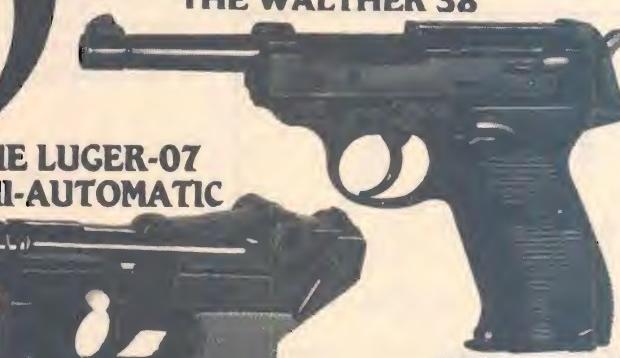

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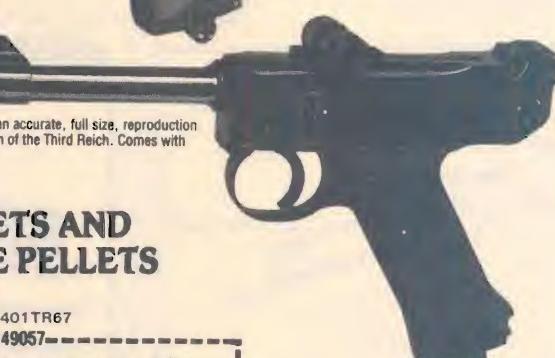


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Continued from page 9

It's illegal to own a blowgun in California. This magazine circulates all over the country and in several foreign countries. We could review the blowgun because many readers can legally possess one.

Shelter Building

I require data concerning the design, construction, site, climatic factors, materials, interiors and many other factors that enhance affordability of a survival shelter. Also, I would like to know how to prepare various survival foods that will have long shelf life, information on wells for water for a shelter as well as ventilation systems. Because we are more of a cold climate, consideration of this fact would be greatly appreciated. I have recently compiled a pamphlet of 60 pages of various survival situations and will show my gratitude to anyone who supplies me with the above information by sending a free copy of this pamphlet.

"The Point" column. I really agree that the radical element found in this country has and is giving a negative label to a movement that is essential to survival. It is really a shame it has happened. I wonder if the title of American Patriot might not serve the movement better. I'm not against being self reliant. I think I would rather be prepared to get America back on her feet once disaster has struck. Perhaps we need to look at disasters in several different lights as that is how they come. We can have them in a family—brought about as a result of loss of job or untimely death or an accident, etc. While these are disasters, they are rather limited in scope but people should be ready to deal with the problem. We have city or regional disasters. Earthquake, fire, storm, etc. Then we could have a national disaster—War, depression, climate conditions that ruin crops. You and I have already made the commitment to be prepared for what may come. Too many of our people take the view that "Uncle Sam will step in." He won't and he can't.

Wayne Hutsul

332 Odgen St.

Thunder Bay "S," Ontario

P7C 2N3 Canada

E. Wheeler Oliphant
Salt Lake City, Utah

We invite knowledgeable readers to contact you. Wayne, and we suggest you see back issues of this magazine for coverage of some of the concerns you mentioned.

On Being Prepared

I have just purchased the September 1985 issue of ASG and have read your "To

We think survival is the best term to describe what we're after. A "survivalist" to us is simply someone who studies and practices how to survive one situation or another. We're interested in helping people learn how to survive. Period. There are no guarantees in life. But with knowledge and preparation, the chances of survival are increased in your favor. Thanks for your comments. ●

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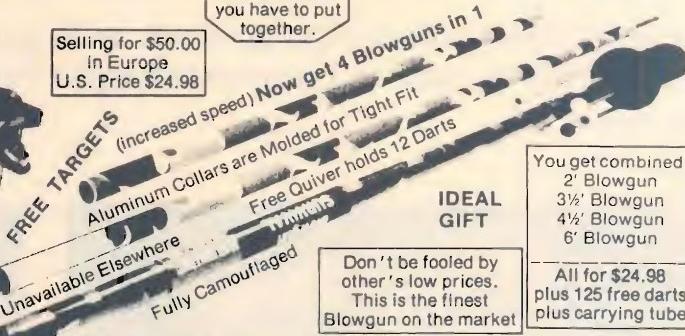
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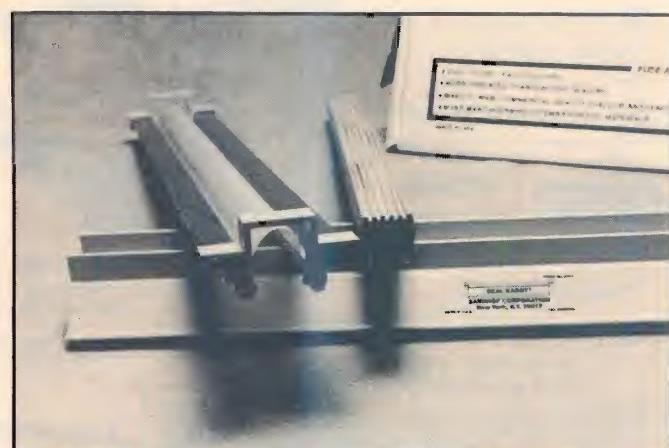
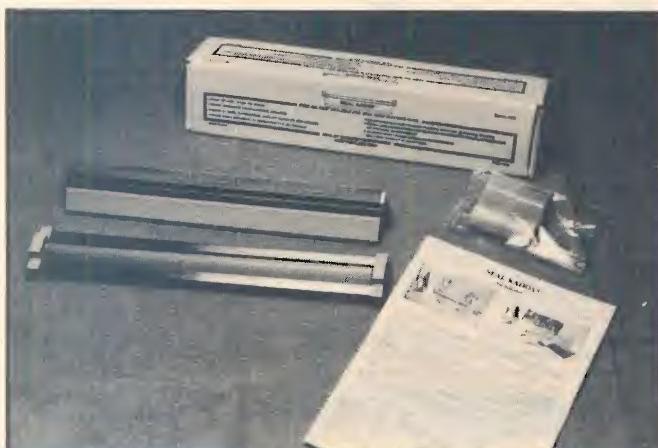
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Prevents Oxidation:

SEAL KADDY

An instrument designed to work with a common household steam iron to seal vacuum-packaged foods, other items . . .

Staff Report



The Seal Kaddy is used with a steam iron to seal a variety of vacuum-packaged foods or other materials. Vacuum-packaged foods must still be frozen, refrigerated or canned for maximum shelf life.

This man vacuum packed and stored a rifle for over a year in a Sandhof 4.5 mil gun sleeve.

AIR IS ESSENTIAL for life. But oxygen in air, through oxidation, depletes the freshness and nutritional value of stored foods.

One method of storing foods for maximum shelf life and nutritional value is vacuum packaging, which removes about 95 percent of the air from containers. Vacuum packing is used with refrigeration, canning or freezing to maximize storage and nutrition of foods.

The only home vacuum packaging system known to the staff of this magazine is the JET-O-VAC. This system uses water pressure from a kitchen faucet to create a commercial-grade vacuum of 28 inches HG. HG is the symbol for mercury and is used to indicate barometric pressure. The JET-O-VAC system was tested and received a positive evaluation by this magazine in its September 1984 issue (page 44).

The Sandhof Corporation of New York

is the manufacturer of the JET-O-VAC home vacuum packaging system, which is capable of producing a commercial-grade vacuum in seconds. With this system food and other household items, even firearms, can be vacuum packed in special vacuum-freeze-boil pouches and aluminum laminated pouches used for home vacuum packing as well as almost all heat-sealable foil, ranging from thin polyethylene to heavy vinyls. Envelopes, book covers, and larger items can be made this way as well.

To retain the high vacuum in such pouches they must be sealed in a way that no air can get back into them. A quality electric heat sealer was not available for this purpose, so Sandhof Corporation developed the Seal Kaddy, a three-piece, nonelectric instrument for sealing vacuum packages utilizing a common electric steam household iron as a heat source. A $\frac{3}{4}$ -inch wide, wrinkle-free seal up to 14 inches long can be made in 2 to 4 seconds.

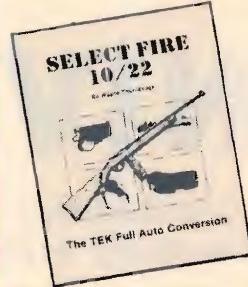
The time of heat exposure depends on the type of material to be sealed. The Seal Kaddy design allows a user to advance the plastic or foil material so any desired

length of seal can be made, with each portion being up to 14 inches long.

With the proper temperature setting on the iron for a specific material to be used, the user can fuse the vacuum-freeze-boil pouches and aluminum laminated pouches used for home vacuum packing as well as almost all heat-sealable foil, ranging from thin polyethylene to heavy vinyls. Envelopes, book covers, and larger items can be made this way as well.

The firm also has 4.5-mil-thick "gun sleeves" available in sizes of 48 by 8 inches at \$2.20 each and 52 by 10 inches at \$2.85 each. All prices include postage.

The Seal Kaddy is unconditionally guaranteed and sells for \$19.50, handling and postage included. It is available from Sandhof Corporation, Dept. ASG, 299 Madison Ave., New York, NY 10017; phone (212) 972-0328. ●

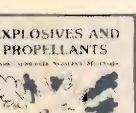
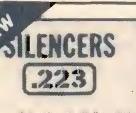


SELECT FIRE 10/22

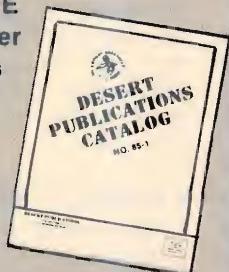
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Companions:

UTILITY KNIVES

The need for a large, heavy survival knife is infrequent compared with the need for a smaller, more deftly wielded blade . . .

By Jerry Younkins

THE EDGED TOOL, specifically the knife, is matched by no other in its utilitarian value and it is obvious that this fact is not lost on survivalists. However, survivalists are all too often swayed by both image and advertising into the purchase of products that may either not meet the demands of the field or are too much for the job.

Except possibly for firearms accessories, nowhere is this more evident than with cutlery. The need for a large, heavy survival knife is infrequent compared with the need for a smaller, more deftly wielded blade. I am all for ownership of a "stake your life on it" quality knife that is suitable for disaster use or wilderness survival and have several blades that would be classified as pure survival knives, but usually they reside with my gear in the closet or in the car trunk for outings.

What I consider more practical for frequent use and have observed in common carry along both my survivalist peers and outdoorsmen in the field is the utility field knife. Such a knife might be described in the following simple generalization. It will be a single edge sheath knife with an all-purpose blade design with a length of from 2 to 6 inches. Virtually every manufacturer of commercial cutlery and custom knifemaker offers one or more patterns in this description and most certainly the selection is wide enough that any prospective buyer can locate a pattern that will appeal to both eye and pocketbook.

The utility knife is perfect for camp chores, dressing small to medium wild game, useful around the home or afield. The single edge design is undoubtedly superior for skinning use as the double edged knife increases the risk of pelt damage or penetration of the bowels. The novice may get a feeling when strapping on a massive survival or fighting knife that he is king of the woods but those with more practical experience understand that tools should fit the job and not vice versa. You don't hunt squirrels with a .44 magnum and you do not have the same dexterity and blade control with a large knife as with a small one. Needless to say, the utility patterns are inferior to the tanto or bowie patterns for defensive use but the practical use of a knife as a tool is still its chief



LEFT—These are custom fixed blade utility knives by Dennis McConnell.



BELOW—The Lee Benchmade Field Trio made with Damascus steel are from top, drop point, bird and trout, and skinner.

function and a utility knife will often double as a defensive tool with suitable results if pressed into emergency service.

The models in this article represent a cross section of available patterns and were selected for their diversity. A source list is included at the end of the article although many of these patterns are commonly encountered at retail outlets and gun shows.

BOKER PREMIUM FIXED BLADE MODEL 511

One of the most effective blade designs for utility use is the clip point often offered on larger bowie style survival knives. The clip is not sharpened although it is more narrow than the 1/4-inch spine. The 511 features a full tang, where blade and handle are one solid piece of metal, the strongest type of knife. It has rosewood handles, a single tine bronze finger guard and is made of 440C stainless steel. The 511 comes with a quality leather belt

sheath. This particular knife exhibits an excellent strength found more commonly on larger models. It retails for \$103.

BUCK MODEL 107 SCOUT

The Buck family has been making knives since the turn of the century and are well known for their tradition of excellence, which the Scout continues admirably. This small, light knife with its 4-inch upswept blade and full tang is both an excellent skinning and utility pattern. The full tang handle is contoured and allows a firm grip and easy manipulation of the blade edge. Comes with a pouch style black leather sheath. Suggested retail price is \$31.

CAM III C-17 BUTT CUT

An example of a commercially priced knife that borders on custom made, the full tang C-17 features a mirror polished 3 1/2-inch blade and nickel silver bolster.



LEFT — Utility knives with sheaths are from left, Explorer Stag Hunter, CAM III Butt Cut, Parker Magnum Bird Hunter, and Buck Scout.

BELLOW — From left are the Explorer Stag Hunter, Condor 84 SSG, Parker Magnum Bird Hunter, Buck Scout, Parker Texas Sesquicentennial Hunter, Eye Brand Stag Utility, Precise Laser Carved Utility, Precise Mountain Shadows Utility, Russell Belt Knife, Boker Tree Brand Hunter. Lower left is the Ka-Bar Utility and lower right is the Frost Coon Skinner.



The handle sports mahogany wood micarta handle slabs and a thong hole. Sheath is included in the \$42.95 retail price.

CONDOR 84 SSG

It is not an exaggeration to call the 84 SSG awesome. There are so many subtle design points that this radical little knife could fill up the entire article. Designed by Phil Hoffman, the blade on this rugged though compact knife measures 2 1/8 inches and is composed of 8A high carbon stainless steel polished to a satin finish. The handle slabs are made of two tone grey linen/resin high pressure laminate, an extremely tough material. The 84 SSG can be manipulated from three different hand positions allowing precision use of the **short but far from delicate blade**. The greatest compliment that I can pay to the Condor is that it feels like an extension of your hand, part of you as you work with it. Suggested retail is \$59.95.

EDGE MARK SOLINGEN HUNTER MODEL 20-430

The full tang 20-430 has several features that make it highly desirable. It has a 3 3/4-inch carbon steel blade and many outdoorsmen still prefer carbon steel as it is easier to sharpen than stainless. However, the drawback with carbon steels is that they are less corrosion resistant. If you take care of your equipment it will take care of you and a thin coating of oil will protect carbon steel blades. Remember to wipe off excess oil before use. Handle material is beautiful Indian stag horn which many find to be the most comfortable of grips. The 20-430 is fitted with a brass guard and rivets and the taper of the butt facilitates superior grip. This is a **classic utility pattern and may be held with either a full hand grip or with the index finger at the choil**. The choil is the area of space, sometimes indented, that lies between the end of the blade edge and the

guard or bolsters. The 20-430 is accompanied by a dark brown leather sheath and sells for \$50.

EYE BRAND #380 MOUNTAINEER

Another example of a near perfect utility blade shape is the 4 1/2-inch design on the full tang Mountaineer. The blade is composed of high carbon steel and the handle is fitted with eye pleasing and grip securing stag handles, a thong hole and nickel silver guard. This Solingen blade from Germany is another example of a commercial knife that presses hard on the heels of custom cutlery. Accompanied by a brown leather sheath the #380 retails at \$56.75.

FROST CUTLERY COON SKINNER #10-166

The Coon Skinner is a petite full tang drop point with Indian stag handles and

Continued on page 60

Ours vs. Theirs:

ARMY CHEMICAL WARFARE

Army preparations for withstanding a chemical weapons attack by Soviet forces . . .

By Richard Bocklet



A NATO colonel concerned with unconventional warfare told me: "There're 85,000 Soviet troops specially-trained for nuclear, biological and chemical (NBC) attack. The Russians have stockpiles of chemical munitions and issuance of modern protective equipment to

Warsaw Pact forces causes deep concern in Allied circles. Both their training and doctrine indicate readiness to use chemical agents in a European war."

There are various military advantages to chemical weapon use by a well-protected attacker. While producing casualties, they

leave structures, equipment and supplies intact for future use. Use against rear areas can seriously impair the defenders' ability to support and resupply combat operations. Both persistent and non-persistent nerve agents would restrict use of terrain by NATO defenders, forcing



Soviet troops undergoing chemical warfare training.



"Smokies" practice using obscurant gas.



These troops are learning decontamination procedures.

them to maneuver in cumbersome and hot protective suits. Chemical weapons also present the option of escalation without resort to nuclear weaponry.

Former commander of NATO's Central Army, Gen. Frederick Kroesen put it bluntly: "If I were a Soviet commander, I would have difficulty in not recommending use (of chemical weapons) because of the tremendous advantage they give you. I feel that way about chemical weapons, nuclear weapons and I'd feel that way about artillery if they had it and we didn't."

Chemical and biological warfare is not just a matter of estimates and speculation. Their skin red and blistered, bodies in convulsions as they gasped for breath, hundreds of soldiers lay helpless on barren Middle Eastern battlefields. A few dozen more fortunate ones hit by mustard gas were rushed to hospitals throughout Europe. Others became fatalities of deadly nerve gas. These present-day victims of the Iran-Iraq War's chemical-infested battlefields revived the ghosts of World War I when over 1 million soldiers were wounded and 100,000 died in poison gas attacks.

As backers and weapons suppliers to Iraq, the Russians are suspected by Western intelligence of directly, or circuitously, aiding in those attacks. Over the years, there's been ample evidence of Russia's use of toxic agents, like "yellow rain," in Laos, Cambodia and, since 1980, in Soviet-occupied Afghanistan.

A 19-year-old soldier, Anatoly Sakarov, who defected to Pakistan, told reporters Russian chemical agents used to quash Afghan resistance included pitric acid, picrinc and smirch.

U.S. Response—To understand how the U.S. is responding to the growing Soviet

nuclear, biological and chemical threat, I visited Ft. McClellan, Alabama, site of the U.S. Army Chemical Warfare School. Its job is preparing soldiers, NCOs and officers to function in an NBC environment as well as development of doctrine, defense equipment and training programs and devices. The school also studies chemical retaliation methods and use of smoke obscurant and flames as battlefield assets. It writes Army NBC training manuals and works with NATO on the always thorny problems of equipment standardization. For Allied cooperation, it exchanges resident officers with the West German Chemical School at Sonthofen.

Students are grouped around an M-12-A1, power-driven, decontamination apparatus, with pump and spray units, heater and tank for the super-tropical bleach and DS-2 decontamination solutions. This is fitted onto a 5-ton truck and used to spray terrain, vehicles, and personnel exposed to an NBC environment.

"There's three ways to decontaminate something: Wash away the toxic substance, cover or bury it, or neutralize it. With this equipment we can either spray away or neutralize the material. The Soviets have a similar system—the TMS-65 with jet turbine engines strapped on the back, they can either spray substances or vaporize them with streams of hot air."

The speaker is Sgt. 1st Class Adam Hill, chief instructor in the Entry Branch Training Area, with 14 years in the Chemical Corps. Today, he was supervising students in their fourth week of NBC instruction in survey and decontamination procedures. After nine weeks, these "chemical operations specialists" will return to home units to instill and monitor proper NBC procedures.

As we watched the decontamination operations, current gear, including the M-17 series gas masks came under discussion. "It's basically a good mask but takes a few minutes changing filters," he commented. "The experimental XM-40 allows the filter to be removed with the mask on, while upgrading vision and general wearability. This series is used by the Army and Marines while the Navy employs the Mark-5 with different filters geared for industrial chemicals which could explode on ship."

"The Warsaw Pact masks are inferior to ours on a number of counts," he added. "There's no water-drinking capability, no voice meter, and they have a smaller eye lens limiting field of vision. Contrasted with our head harness, theirs resembles a heavy rubber shower cap fitting over the skull, impeding air circulation and causing excessive heat. This Soviet mask has been around a while, so they must think it fits their purpose."

Spec 4 Gereld Johnson was on his second visit to the Chemical School, this time for more advanced instruction. As the NBC specialist attached to B Company, 27th Engineer Battalion, Ft. Bragg, his job is to keep the unit current with latest techniques and equipment. He jumped into the conversation. "Soviet NBC training is tough and realistic, even using active toxic agents. But then their value system is different from ours—casualties in training are acceptable."

He too found the Soviet mask inferior to the U.S.'s. "Not only does the rubber hood foster regular heat exhaustion cases, vision, hearing and speech are all greatly restricted. Elephant-like, their canister dangles before them and can accidentally

Continued on page 69

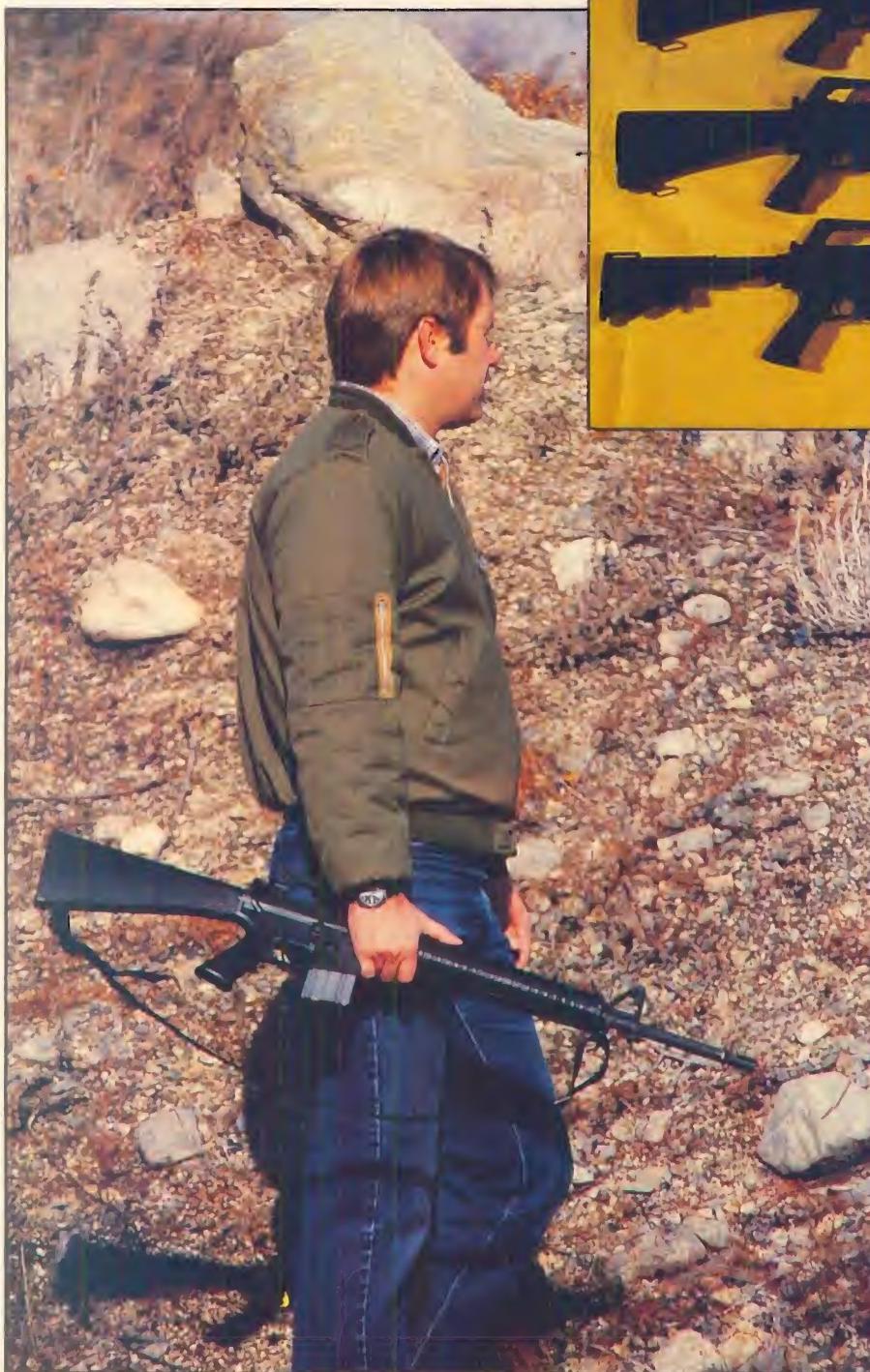
'Civilianized' M16A2:

AR-15 A2 SPORTER II

A relatively inexpensive, lightweight, reliable weapon . . .

By Lee Upchurch

PHOTOS BY BUD GILLMAN



The AR-15 A2, top, is slightly longer than its predecessor, the AR-15, center. The CAR-15 is shown at bottom.

THE AR-15, in both rifle and carbine configuration, has been chosen by many to satisfy their need in a survival weapon.

This can be attributed to the fact that the weapon system is relatively inexpensive, lightweight, and reliable. Also, there are abundant spare parts, ammunition, and after-market accessories. Furthermore, it is a very familiar weapon to a great number of people, being a very close facsimile of the venerable M16 which has been used by many of us while serving in the armed forces during some part of the last twenty years.

Colt Firearms has produced an improved AR-15, officially called the Colt AR-15 A2 Sporter II. In essence, it is a "civilianized" version of the M16A2, an upgraded model of the M16A1 and adopted by the U.S. Army and Marine Corps.

An evaluation of the AR-15 Sporter II was conducted to examine the improvements made in the firearm.

After taking the Sporter II out of box and removing it from the plastic storage bag, the first prominent feature are the handguards. They are identical in configuration to the AR-15 carbine's, only these

are much longer. The round handguards have a better handling characteristic than the older style and appear to be very robust. They will not break as easily as the previous triangle style handguards.

The next noticeable change is a heavy looking barrel protruding from the handguards. The barrel's diameter has been increased to add stiffness to that length of the barrel just forward of the front sight assembly. This area needed to be strengthened to minimize barrel distortion. Evidently, our troops have used the end of the M16's barrel as a pry bar, thus causing damage, and did it enough times that it was deemed a problem. About 7.5 inches of the barrel was enlarged. The diameter of the remaining barrel length, underneath the handguards, was not changed. The additional mass added to the barrel has made the Sporter II balance nicely too.

At this end of the rifle, a change in the flash suppressor can also be detected. It is exactly the same as the previous style in dimension, however, the bottom portion of the suppressor does not have any ports. The ports, five of them (there were six ports in the preceding model), are all located on top of the flash suppressor to insure that exiting gases at the muzzle exert pressure downward to reduce muzzle climb. The significance of this effect was not realized during semi-automatic fire. It also lessens ground disturbance when firing from the prone position.

Forward Assist—Glancing towards the other end of the Sporter II in search of other improvements, a forward assist assembly located on the upper receiver practically jumps out at you. Though this device may have some questionable merits, it is unusually appealing. It's more an aesthetic feature than a functional one. Maybe because it is so closely associated with the M16 and it brings back memories.

Just below the forward assist assembly is a reshaped pistol grip. A finger groove is molded into the pistol grip just below the trigger guard. It is very comfortable. Longitudinal grooves located on the back of the grip, combined with the finger groove, provide a very secure hold for the user.

Between the receiver and the handguards is a tapered slip ring. All of you who have cleaned an AR-15/M16 will realize the importance of redesigning this device. The slip ring is to hold the handguards securely in place. When dismantling the handguards for cleaning or inspection of the barrel and gas tube, it was always a trial and tribulation to pull the slip ring back far enough to release the handguards. It's such a confined space and nothing to grab on to. Success was usually achieved after getting help from some extra hands and a screwdriver. The tapering shape of the new slip ring provides a better grasp of the device over the older type and the removal is at least easier than what it was.

By looking at the buttstock, it may be



The newer style Sporter II buttplate is at left. It is completely checkered.



An improved pistol grip offers better control of the weapon.



A tapered slip ring is used with the Sporter II to make easier the task of removing the handguards.

difficult to detect at first glance, but it is 5/8 inches longer and reinforced for added strength. It will be a more comfortable length for most of us. A different buttplate has been incorporated too. It's checkered over the entire buttplate instead of the older model where only the butt-trap was checkered. Also the butt-trap latch seems to have been modified for easier opening.

Finally, there are three other changes that may not be easy to recognize without close examination. The front sight post has been squared instead of being a tapered round post. This was for obtaining a better sight picture. The new sight is still adjustable for elevation. The other change is the dust cover. The latch has been enlarged and strengthened to reduce breakage. The third change is in the barrel. It has a faster twist to it, one turn in seven inches, as compared with the older model that had one turn in twelve inches. That's a very fast spin. It was produced with the faster twist because the military adopted the new 5.56mm NATO round.

The 5.56mm NATO round when fired from this barrel is supposed to be more stabilized, therefore having more range and penetration capabilities. The new rifling does not negatively effect the performance of the current ammunition, at least not in any significant way.

There has been controversy in regards to a shorter barrel life with the faster barrel twist. Only time will render a decision on this controversy. One fact that you should remember is that the Marine Corps, the primary party who collaborated with Colt in the design of this firearm, did some very thorough studies on the matter and they decided to adopt it. If you're acquainted with the Marine Corps at all, you will know that it is likely that the barrel is as good, if not better, than the previous model. They really can't afford to waste a lot of money like some other services.

A Hassle—One weakness in the Sporter II is connected with the receiver pivot screw. The upper and lower receivers are joined by a receiver pivot screw instead of the M16 type pivot pin. The latter enhances disassembly considerably.

The Sporter II is shipped with the usual accessories: a black sling, two 20-round magazines (with five-shot blocking devices), muzzle cover, cleaning rod, chamber brush, and bore brush. No difference here from the previous accessory package.

Evaluation—After lubricating the Sporter II, it was out to the firing range for some familiarization time. The new rifle handled very well. It is about a half pound heavier but this seemed to benefit the weapon instead of burden it. Again, the weapon balanced nicely.

The front sight definitely provides a better sight picture. As with all small calibers of this nature, combined with the



The forward assist is reminiscent of the M16.



A better sight picture can be obtained with the Sporter II's squared front sight.



The bottom of the Sporter II flash suppressor has no ports in it.

weapon design, recoil was negligible. Firing from the prone position, the average group of the Sporter II was comparable with the older AR-15. This was an average of three-inch groups at 100 yards. If it wasn't for the uncomfortable conditions of winter during test firing, the groups might have been better.

The AR-15 A2 Sporter II is definitely an improvement over the older AR-15 Sporter. The handling characteristics are superb and it is definitely more robust. The Sporter II is a real heavy duty weapon. Either in the rifle or carbine versions, the Sporter II is a worthy competitor with other rifles on the market in this caliber. ●

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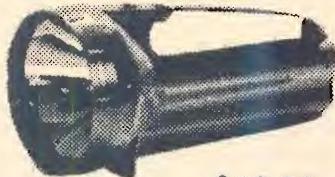
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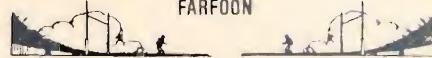
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SEASICKNESS

Motion sickness can be so severe the sufferer wants to die . . .

By Robin Burton



PALLID, LIMP, SWEATING and trembling victims of the ocean's unremitting motion would probably not give more than a few cents to know that the University of Southampton in Great Britain has developed a machine almost guaranteed to make the toughest sailor seasick within a very short space of time. Yet this device, similar in concept to a crazed rocking chair, may provide the key to alleviation of future suffering.

Seasickness, or rather motion sickness as the experts prefer to call it, can be so severe that the sufferer really wants to die. The symptoms are familiar to most people and start with a variable sequence of drowsiness, yawning, headache, pallor,

sweating and salivation progressing to nausea, vomiting and eventual incapacity. Normally it takes some time for these symptoms to show up, but they get steadily worse and new cases will become obvious if the motion persists.

Throwing up is well known to give temporary relief, and many other signs and symptoms have been noticed, including those occurring in the circulatory, respiratory, and gastrointestinal systems, and in the control of body fluids and temperature. Most of these tend to fall in the area generally described as autonomic (The autonomic nervous system is recognized as a major pathway through which the brain controls internal functions). The effects

upon the central nervous system, showing up as changes in perceptions and behavior are of very obvious importance. The list of these is long and includes early euphoria, followed by dizziness, disorientation, feelings of clammy coldness, headache, weakness, anxiety, fatigue, withdrawal, confusion and general malaise.

Motion sickness is sometimes explained away as being "psychological" with the sufferer being told to "pull yourself together," but in terms of causation this is not the case. More significantly, however, illness may cause psychological changes which can become dominant, and in some people the symptoms can be provoked by anxiety in the absence of the actual

disease. In this respect motion sickness is no different from various other illnesses. The most important thing to know about motion sickness, therefore, if one overlooks the very natural desire to find out what causes it, is its effect on performance. A man who is really ill cannot be expected to work normally, and if he is in control of sensitive operations, or is concerned with navigational and weapons systems then obviously the problem has to be tackled.

Dearth of Information—Curiously enough, there is not a great body of information available with regard to the precise effects of motion on performance. Studies conducted by both the U.S. Navy and British Royal Navy have confirmed the occurrence of seasickness to the point where certain individuals have to stop work in rough weather, and indicate that the size and type of ship and its speed and heading all make a great difference to the incidence of motion sickness. In one published account the incidence of vomiting in a 95-foot American patrol boat reached 60 to 80 percent and the effect on the workings of the vessel affected by such a high degree of sickness can easily be imagined.

As it is known that some individuals are much less susceptible to motion sickness and its effects than others, then obviously it would be very sensible to select those least affected for sea service and leave the others on terra firma. This selectiveness could perhaps be graduated in some way, because it is known that some people just get used to the motion and can function more or less normally, although after a spell ashore they may have to go through the same initial discomfort.

A reliable selection procedure should reduce wastage of trained manpower and improve operational efficiency. Unfortunately, there are no systematic data on the exact relationship between exposure to motion and effects on performance, which is partly due to the difficulty of applying reproducible, quantified motion and also to the practical difficulties of measuring performance.

In fact, psychologists have spent a lot of time on laboratory tests of performance without much real success. As part of a preparatory study for work with the large Motion Generator in the USA, some 150 performance tests were assessed by the team psychologist but none emerged as likely to give reproducible or statistically valid results, and this before evaluations of relevance to service tasks.

One of the problems associated with this particular topic as far as research is concerned is the reluctance of sailors to admit that they are affected, sometimes because they look on motion sickness as inevitable anyway, or do not want to remember the time when they were flat on their backs and feeling like death warmed up. In brief, everyone remembers feeling mighty sick, but there is no way of afterwards measur-



The University of Southampton built this special chair to cause and study motion sickness.

ing the extent to which they were affected.

In Britain the Institute of Naval Medicine carried out a pilot study on the incidence of motion sickness in two ships, with the aid of a carefully constructed questionnaire. Questions on past history showed that about 70 percent of the crews had suffered seasickness; 5 percent admitted that they could not work during periods of seasickness, and about 50 percent said that they had some difficulty in working. During the worst days of the sea-keeping trials (seakeeping, in the American sense, is the ability of ships to go to sea and properly do their jobs despite adverse factors) about 40 percent of the crews were seasick, 2 to 3 percent suffered from it every day, and 5 percent had to stop work when sick.

Awareness—There is now a general awareness in the world's great navies that the old and traditional acceptance of seasickness must change. Lord Nelson may

have suffered his regular ordeal of seasickness without complaint but any mistake he made was not as likely to cause havoc as a mistake by the captain of a nuclear submarine! There are other reasons for this awareness, such as the provision of smaller ships for deep-sea tasks for reasons of economy. There is less redundancy of manning, for the same reasons of economy, and radically new designs of ships are on the way.

The "Molokai Channel" trials carried out off Hawaii were to a large extent aimed at finding out whether a 95-foot patrol boat could replace a 378-foot High Endurance Cutter, the U.S. Coast Guard's standard ship for deep-sea missions. During 8-hour watches while sailing an octagonal course at ten knots 60 to 80 percent of the men vomited, on average five times in the watch. In the larger cutter none vomited. Not surprisingly, performance and psychological tests showed that the men in the

Continued on page 64

R&R, Practice:

CAMPING/HUNTING SKILLS

Those counting hunting or camping among their vacation pursuits don't have to choose between recreation and survival training . . .

By Fred Bouwman



If tents and other gear don't make the grade in deer hunting camp, you may want to reconsider the choices you have made.

TIME OFF FROM work is precious stuff. For many folks two weeks out of 52 is it, and you need to compress as much R&R into that time as possible. The conscientious survival oriented individual also recognizes that acquiring and maintaining the skills necessary for the security of his or her family is equally if not more important, and can really get into a bind trying to satisfy both of these needs.

Anyone counting hunting or camping among their vacation pursuits—or who is planning on doing so—doesn't have to make a choice as these recreational activities and the techniques and state of mind of surviving have much in common.

Though outdoor recreation is a growth industry in this country at present, an old American institution that is dying is the traditional fall deer camp. There is a generation of people being raised who can't imagine life without central heating and sidewalks, a fatal mind-set for those bent on being capable of living and functioning

without constant input from industrialized society. Reviving this tradition to include your entire family as well as others included in your survival plans, and expanding into trips during other times of the year, is a fine way to provide for one of life's frequently forgotten necessities—recreation—without neglecting the responsibility of expanding self-sufficiency skills.

Simply getting out of a structured urban or suburban environment with its social and economic demands and safeguards is a big step for some. You may never realize how physically and emotionally dependent you are on a constant police and emergency medical presence, nearby grocery stores, or flush toilets until you leave them behind for a period of time. Survival is a mental process more than anything else. Learning to do without the crutches and distractions of Western civilization is probably the primary advantage of a hunting camp.

Let's stress right away that the idea is not to take a relaxing and rewarding leisure experience, the hunt, and turn it into a paramilitary or logistical exercise of some sort. Learning and honing survival skills comes easily and naturally to outdoorsmen and women, competence in the field and living harmoniously with the natural world being as satisfying and necessary as the stalk or the opportunity to eat real meat. Competence in hunting and living in camp covers an enormous amount of territory in the survivalist's inventory of knowledge. Add a few exercises such as giving some attention to the time it takes to get packed and on the road and you'll have what amounts to an effortless drill. Practice makes perfect.

Before going further regarding what we're going to do, let's take a look at who we're doing it with. I hunt and fish with all sorts of people over the course of a year's time, but those that I spend time living under canvas with are either family or a

select group of people who believe and think about the same way that I do. An often ignored tenet of enlightened self-sufficiency is to *maintain a low profile*. Between the "I'll have the guns and the gold" folks and the government there just isn't much room for advertising either your intent or methods of preparedness. "Loose lips sink ships" is as relevant today as it was in 1940.

Skills—If you have been hunting and camping you have already developed a considerable inventory of survival skills, more than you may realize. The development of hunting skills is outside the scope of this article as there are endless fine books and magazines on the market dealing with this subject as well as the personal instruction of friends and family.

Skills gained as a matter of course while camping during the hunt can be roughly divided into concrete and abstract categories. Among the concrete is included basic land navigation, dressing for inclement weather, food planning, purchasing, and preparation, water supply, sanitation management, and other things normally taken care of by industrialized society.

The abstract, or "soft" as opposed to "hard" skills, are such things as coping with living in close quarters with others, cooperation in daily camp life, tolerance of the myriad of irritating personal habits of others that you won't see in a million years back in the city, and patience. This last is of great importance and has no finer teacher than hunting from a base camp. With no long drive in the car at the end of the day ahead of you, one can work on a skill that is one of the most difficult to master and could very well save your life in a variety of situations—how to sit still for long periods of time while remaining alert.

Abrasive personality traits of individuals can be dealt with in a number of ways, from switching tent partners to talking it out to just learning to live with it. The important point is for them to come out in the open now, before you find yourself in a life-threatening situation made more so by friction among family and cadre.

Additional survival skills fit right in with hunting camp life. The requirements of storage food—portability, balanced nutrition, ease of preparation and energy efficiency, low bulk, ability to withstand temperature extremes, and (depending on your situation) low water demands, are the same as that of camp foods. If your storage foods won't hack it in camp, you can bet they aren't the best choice as a survival plan and can take steps to rectify the problem. If they do work out well for you, you not only have the increased confidence that you have made the right choices, but also the advantage of getting used to eating the stuff and gaining experience in working with it.

This is also a good place to test your capability for producing potable water. Now is the time to find out that a purifica-



Supplies not intended strictly for deer camp can be brought along as part of an exercise in preparedness.



Land navigation is a skill that can be honed while in hunting camp.

CAMPING/HUNTING SKILLS

tion device can't keep up with the volume demands made of it, or if chemical means are inconvenient or inefficient.

Most campers and hunters keep a jug of aspirin and a few Band-Aids handy. The survivalist does better than this, of course, and though you likely won't give your medical supplies the workout that your food program will get, you'll get some idea of the ease of portability and efficiency of packing your kit. And who knows? Though the dangerous part of the hunt is by far driving there, injuries do occur and there's no excuse for not being prepared.

"Eating roots and berries" is the first thought to enter the mind of the uninitiated when survival is mentioned. While foraging to supply one's total food needs has been largely discounted due to the extensive training necessary to make it work on an exclusive basis, large amount of space required per person, and lack of utility for the suburban or urban dweller, supplementing your camp diet with available plant and animal foods is in line with your philosophy of preparedness.

Putting the knowledge gained from an edible plant and mushrooms class to work during the hunt will add a new dimension to the pleasure gained from being outdoors as well as giving you some working experience in food that doesn't have plastic wrapped around it.

In some cases, depending on where you are camping, a few animal traps can be set for small game and the fruits of that labor added to the camp larder. Taking an animal and preparing it for the camp meal is cooking from scratch at its very best. The experience accrued here will pay off both in culinary expertise gained and in adding new sources of protein to the diet. Many so-called "trash" animals are perfectly edible if treated properly by the chef.

One advantage of doing at least some of your hunt camping during the snow or rain seasons is that the tent that looked so good in the showroom may not do the job in a Washington monsoon or Minnesota blizzard. Better to find out now than later. Size, durability, suitability for installing a heat source, ease of maintenance, and how long the waterproofing will last without attention are all factors that can be evaluated during the hunting season.

And color. Those orange tents are out, because shelter that doesn't blend with its surroundings isn't really shelter, is it?

Specialization and a division of labor is the way that complicated tasks get done. This doesn't mean that one individual will be the sole possessor of a branch of knowledge or responsibility, however. Not only can a specialization be lost through the loss of one person, but pigeonholing skills leads to their stagnation. The aim of bringing skills to camp is to allow them to grow along with those using them. Tasks and responsibilities that are assigned to one or



While deer hunting there are often opportunities for taking alternative protein sources.



A hunting camp is a good place to test the viability of your survival food plan.



While you may bring along survival weaponry on a hunting/camping trip, keep a low profile.

more persons such as cooking or food management, responsibility for medical supplies, or other logistical chores should be rotated during or after every trip. Diversity allows the individuals in the group to grow and the group is stronger for it.

Hunting, Weaponry—Group deer hunting is practiced in some parts of the country. The planning, cooperation, and navigational skills necessary to carry out an effective deer drive would pay off in about any survival scenario imaginable. You'll get to know the members of your party pretty well. You'll learn who can sit quietly and patiently for the required time, and who can find his or her way back to camp after dark. These are the kind of things to know ahead of time.

Weaponry and other supplies should go along, but unless you're on some remote private property I recommend keeping these type of items under wraps. Not only is drawing attention to yourselves and your sight violating your commitment to maintaining a low profile, but outlaw marijuana farmers are very much in the news these days and they carry much the same types of firearms as you likely have on your gun rack. A visit from local or federal police can be expected if you're going to flaunt your arsenal, and some states have game laws regulating caliber, magazine capacity, and action type for hunting weapons.

If you anticipate any situation requiring a rapid exit from your home, or even if you don't, packing up for deer camp is a golden opportunity to test your readiness

without causing a lot of extra work. In other words, if it takes you a couple of days to pack up and go then you have a problem. No matter how secure you feel in your present home, there's no substitute for being portable. If your clothing, firearms and ammunition, some tools, and other necessities aren't readily accessible and easily moved then they are not as much use to you as they could be.

I feel you should be able to get together and into a vehicle the basics for an extended stay within four hours, working steadily. Keep a list packed with your supplies to work off of. You don't want to spend any of your vacation time purchasing forgotten items during your hunting trip, and in case of a bug-out situation you won't have time to second guess your packing.

Keep your packing and inventory lists current after each trip by adding what you have missed and subtracting items which aren't working out for you. Keep in mind, however, that some equipment not needed for vacation deer hunts would still be necessary for a long-term stay should an emergency arise. Don't delete the 500 rounds of .223 ammo from the sheet or it could get left behind when you need it most.

The ideal spot for your vacation deer hunt is wherever you plan on retreating to. Private land is ideal, but for many the large expanses of national forest and Bureau of Land Management lands will have to do.

There is no substitute for having an intimate knowledge of the area you will be using. Becoming familiar with the landforms, watercourses, vegetation, wildlife, human inhabitants, seasonal changes, and frequency of road traffic and aircraft flyovers of your area will take years, so you're best off taking your time selecting one spot and then sticking to it.

Acquire a good selection of maps and apply them. Aerial photographs can trim a lot of time off of understanding the lay of the land. If available, use them.

Good hunting country and an adequate retreat area are often one and the same. Minimal human habitation, as few roads or logging trails as possible, and adequate water usually spell good habitat for wildlife and you alike.

R&R—However you go about organizing your survival exercise around your hunting camp, don't forget to enjoy yourself. Remember that R&R is as necessary for your health and happiness as food and shelter, so don't turn your vacation into a drawn-out fire drill. When you find yourself living comfortably in the woods, and feel that with a few adjustments you could stay, then you are either there or awfully close. Don't forget to go home at the end of the week. ●

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Staff Report

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RDC, that's Renaissance Development Corporation, is working on production of Mag Loaders for Heckler & Koch and Galil weapons and hopes to have them available for sale soon.

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Mag Loader is available at gun stores nationwide. For more information, contact Renaissance Development Corporation, Dept. ASG, 2031-F Gladstone St., Glendale, CA 91740; phone (714) 599-8775. ●



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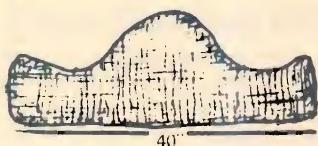
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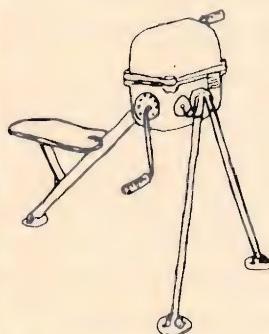
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U.S. made 8" boot. Black leather and Cordura® nylon upper, Gore-Tex® fabric bootliner, Thinsulate®, unbreakable fiber-glass shank, Vibram® sole. Guaranteed waterproof. See two page evaluation on Eliminator in American Survival Guide, October, 1985 issue. Sizes: 7-13 Half Sizes through 10½ Widths: D(medium), EE(Wide)

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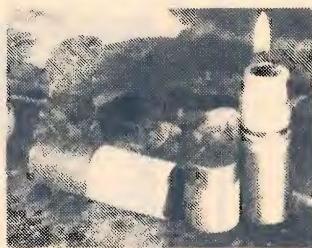
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"Tested Products" since 1979 Storage compartment in grip, 3/8" longer for large hands, provides superior control, guaranteed, "super-tough" nylon, lifetime warranty.

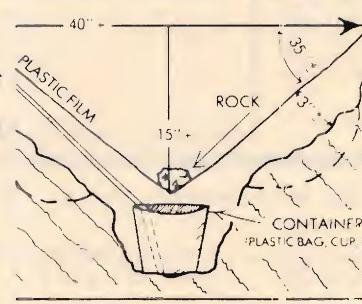
\$15.00 + \$2.00 Shipping

Solar Still™

Emergency survival solar still can produce up to 1.5 quarts of water per day even from desert sand. This 5' x 5' Dupont Tedlar sheet folds into a compact 5" x 3" x 1" package weighing only 3 ounces. Dupont Tedlar was designed specifically for solar applications and is the most efficient of all plastics for this application. Includes drinking tube, 2 quart poly bag, and instructions.

Reg. \$9.95 + \$1.50 UPS

Special through Feb. 15: \$7.95 + \$1.50 UPS



German Army Coldweather Sleeping Bag



Waterproof base. No ground sheet needed. Can be used on bare earth. Wraps into waterproof hood. Very compact with carrying handle. Made for the extreme cold weather of Germany. Large body zipper. This is the Ultimate in Army Survival. Designed for combat conditions in cold winter weather, it features a 3 lb. Halofil quilted liner with a waterproof back and a water-resistant front. It has a zipper at knee level, so that if you are in the bag and need to move out, but still keep warm, you just unzip and stick your legs out. The bottom is then brought up the back and secured with a belt and there you are with a full cold weather parka that resists all weather and keeps you warm while you fish, hunt, or do any activity in weather down to -10° F. To carry, just roll it up in its waterproof hood, and use the carrying handles. You could not buy this bag new for \$175 in the retail market. These are in excellent re-issue condition. Quantities are limited. Total weight: 6 lbs.

Reg. \$59.95 + \$5.00 UPS

Special through Feb. 15:
\$49.95 + \$5.00 UPS

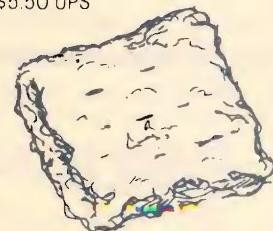
Genuine Military Freeze-Dried Beef and Pork Patties

A great deal on delicious freeze-dried patties. These recent production, individually shrink foil wrapped patties are a natural for emergencies, backpacking and camping. Each 1.2 oz. patty reconstitutes to an 8 oz. serving.

Reg. \$2.00 each

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48 for \$36.00 + \$3.50 UPS
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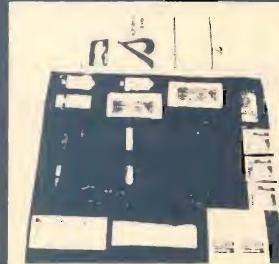


Family Emergency Medical Kit

A comprehensive medical kit for the home or camp. Nylon bag with waterproof backing features "D" rings, handles, belt loops, fold-out accessibility and Velcro closure pocket. Size: 6 1/2" x 12" x 3". Weight: 29 oz. Color: black.

CONTENTS: * indicates sterile item
Utility bandage scissors, splinter forceps, Mayo-Hegar needle holder, stitch scissors, 2 disposable scalpels* (#10 & 11), nylon sutures* (4-0 & 5-0), 5 butterfly closures, penlight, oral thermometer, Penrose tourniquet, 3 airways (sm., med. & large), triangular bandage, 3" elastic bandage, 2 4" x 4" gauze*, 2 2" x 2" gauze, 2 2" x 3" Moleskin, 2 2" x 3" Telfa pads, 2 3" x 4" Telfa pads, 2 2" x 3" coverlets, large digit coverlet, 5 sheer strips, 4 Q-tips*, 1 oz. bar soap, oral thermometer, 4 safety pins, 2" elastic bandage, 2" stretch gauze, triangular bandage, Penrose tourniquet, 1/2" cloth tape, 2 extra large Band-aids, 4 Butterfly closures, 2 BZK wipes, 10 aspirin, analgesic balm, 4 alcohol prep pads, 3 Povidone-iodine prep pads, 2 1/32 oz. Neosporin ointment, 2 3 gm. lubricating jelly*, 5 gm. A&D ointment, ammonia inhalant, eye pad*, first aid book.

Reg. \$129.95 Special through Feb. 15: \$99.95 + \$5.00 UPS



Premier Surgical Kit

All the top quality surgical instruments necessary for emergency field surgery in a nylon bag with waterproof backing, surgical tray layout, Velcro closures and two inside pockets. **Size:** 7 1/2" x 7 1/2". **Weight:** 1 lb. **Color:** Black

CONTENTS: * indicates sterile item
7 1/2" Lister bandage scissors, straight Kelly forceps, curved Kelly forceps, straight mosquito forceps, curved mosquito forceps, curved iris scissors, Mayo-Hegar needle holder, dressing forceps, No. 3 scalpel handle, scalpel blades* (No. 10, 11 & 15), nylon sutures* (4-0), silk sutures* (5-0), 3 steri-strips, 3 BZK wipes, 4 alcohol prep pads, 3 Povidone-iodine prep pads, Povidone-iodine swabstick, 1/2 oz. Povidone-iodine solution, surgical gloves*

Reg. \$105.00 Special through Feb. 15: \$94.95 + \$4.00 UPS

Backpacker's Medical Kit



CONTENTS: * indicates sterile item

Lister bandage scissors, splinter forceps, penlight, 4" x 4" gauze*, 2 2" x 2" gauze*, 5 4" x 4" gauze, 5 2" x 2" gauze, 2 2" x 3" Moleskin, 2 2" x 3" Telfa pads, 2 3" x 4" Telfa pads, 2 2" x 3" coverlets, large digit coverlet, 5 sheer strips, 4 Q-tips*, 1 oz. bar soap, oral thermometer, 4 safety pins, 2" elastic bandage, 2" stretch gauze, triangular bandage, Penrose tourniquet, 1/2" cloth tape, 2 extra large Band-aids, 4 Butterfly closures, 2 BZK wipes, 10 aspirin, analgesic balm, 4 alcohol prep pads, 3 Povidone-iodine prep pads, 2 1/32 oz. Neosporin ointment, 2 3 gm. lubricating jelly*, 5 gm. A&D ointment, ammonia inhalant, eye pad*, first aid book

Reg. \$64.95 Special through Feb. 15: \$54.95 + \$3.00 UPS

Includes the minimum recommended by the Mountaineers, Mountain Rescue Council and the Washington State Department of Emergency Services for the basic first aid kit. Small enough for pack, it is ideal for individual use. Fold-out nylon bag with waterproof backing and D rings. Size: 5" x 8" x 3". Weight: 17 oz. Color: Black

Expedition Emergency Medical Kit



Size: 8 1/2" x 13" x 7 1/2" Wt. 7.4 lbs.

A large complete kit containing everything you might need to deal with severe lacerations, fractures, and medical emergencies at home or in remote field situations where a complete first aid kit can mean the difference between life and death. Includes complete surgical kit. Cordura nylon bag with ballistic nylon bottom panels has handle and padded shoulder strap, with fold-out front section for quick access. Color: black

CONTENTS: * indicates sterile item

Blood pressure unit, Bowles stethoscope, utility scissors, splinter forceps, Mayo-Hegar needle holder, stitch scissors, disposable scalpels* (No. 10, 11, & 15), nylon sutures* (4-0), silk sutures* (5-0), 10 butterfly closures, penlight, 6 airways (assorted sizes), surgical gloves*, 2 pair gloves, oral thermometer, hypothermia thermometer, 6 Steri-Strips, 2 Penrose tourniquets, triangular bandage, elastic bandages (2", 3" and 4"), 3 4" x 4" gauze*, 3 2" x 2" gauze*, 15 4" x 4" gauze, 15 2" x 2" gauze, 5 2" x 3" Telfa pads, 5 3" x 4" Telfa pads, 2 2" stretch gauze, 2 3" stretch gauze, 3" stretch gauze*, 15 1" x 3" sheer strips, 4 extra large Band-aids, 3" x 3" adoptive dressing, 5" x 9" ABD surgical pad, 3 2" x 3" coverlets, 3 large digit coverlets, 2 eye pads*, 4 2" x 3" Moleskin, 10 Q-tips*, 12 safety pins, arm plaster splint, leg plaster splint, 2 quick ice packs, 50cc irrigation syringe, 5 tongue blades, 1" cloth tape, 1" cloth tape, 100 analgesic tabs, 6 Sudafed, 8 Chlorotrimeton, 10 Dimidac, 100 water purification tabs, 100 25 mg Bisacodyl, 1/6 oz. Driston mist, 1/4 oz. yellow oxide of mercury, 1 oz. 1% Dubucaine, 1 oz. 5% hydrocortisone cream, 15 gm. Tinactin cream, 3 Orabase w/Benocaine (75 gm.), 4 oz. calamine lotion, 1/2 oz. irrigation eye solution, 5 ammonia inhalants, 1 oz. 70% alcohol, 10 alcohol prep pads, 10 BZK oz. surgical scrub, Vaseline gauze dressing, 15 Povidone-iodine prep pads, 2 Povidone-iodine swabsticks, 1/2 oz. Povidone-iodine solution, 3 A&D ointment, 6 Neosporin ointment (1/32 oz.), 3 lubricating jelly*. Wilderness Medicine Book

Reg. \$359.95 Special through Feb. 15: \$299.95 + \$10.00 UPS

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CORE RESOURCE

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Super Tool:

HI-LIFT

This mighty jack is a necessary piece of gear for off-pavement escape . . .

Staff Evaluation

MOVING A VEHICLE from Point A to Point B, perhaps in desperation through hostile territory, is one future situation that concerns many survivalists. The potential for a mishap, a flat tire, damaged suspension, engine breakdown, or simply getting stuck tight increases many fold.

A lifting tool, the Hi-Life Jack, can help to solve these off-pavement repair or stuck problems. The Hi-Lift can be used to raise up to 7,000 pounds, and it can serve as a clamp, winch or hoist as well.

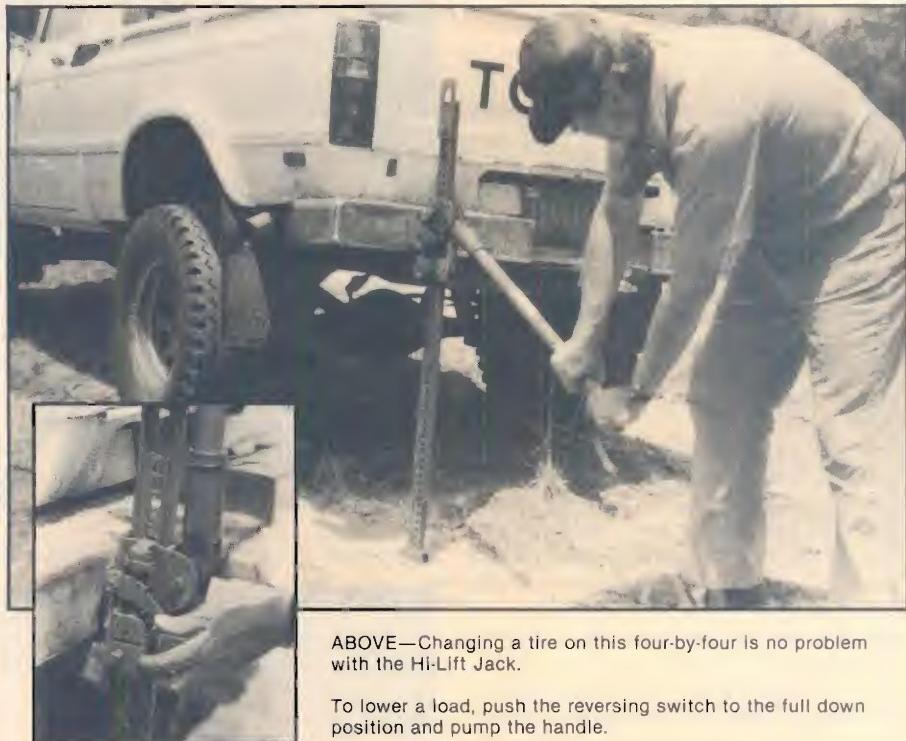
The Hi-Lift is built like an old-time steam locomotive. It looks like a conventional bumper jack, but isn't. Hi-Lifts are available in three lift heights: 42, 48 and 60 inches. The rectangular forged steel standard is 1 by 2 inches, and features 1/2- by 3/4-inch oval holes into which the jack's climbing pins fit as a load is being levered upward.

The standard fits into a 4 1/4- by 7-inch base plate, and is secured by a cotter pin. The runners, large and small, fit over the standard. The stamped 3/16-inch steel lifting nose projects 4 inches outward from the large runner and is ribbed to prevent slippage on the load-bearing surface. The climbing pins are located in the runners, one 9/16-inch hardened steel pin in the large runner, a second 9/16-inch pin in the small runner. A 5/16- by 2 1/8 SAE Grade 2 bolt serves as a shear pin when the rated load is exceeded. As the jack's 32 1/2-inch handle is pumped up and down, the large and small runners move upward, and the climbing pins work alternately into and out of the holes in the standard.

Basic use of the Hi-Lift is much like using a conventional bumper jack. Observe the safety precautions: (1) Make sure the jack is in a stable position. (2) Stabilize the load, i.e., chock the wheels, and be ready to support the raised load with blocks. (3) Keep fingers out of the moving parts. (4) Never push a raised load off the jack. And, (5) keep a firm grip on the jack handle at all times.

The Hi-Lift shines in rough terrain where a vehicle can become high-centered or scissored so that one or more driving wheels fail to touch the road surface. Here the Hi-Lift comes into its own as the universal tool for getting a vehicle unstuck.

If a chain or lift strap is available, and there's a convenient tree to which to anchor the Hi-Lift, it can be used as a



ABOVE—Changing a tire on this four-by-four is no problem with the Hi-Lift Jack.

To lower a load, push the reversing switch to the full down position and pump the handle.

come-along to pull a heavily laden vehicle over the rough spot.

Or, if the runners are reversed, the lifting nose and baseplate become faces for a large-sized clamp that can perform a heavy-duty holding job.

Moreover, if the underside of a vehicle must be worked on, or an engine must be changed, the Hi-Lift can be used as an overhead hoist.

To lower a lifted load, all that is necessary is to push the reversing switch lever to the full down position, and then pump the handle.

The Hi-Lift is a formidable device in itself, but the manufacturer offers an accessory that can enhance the jack's power and utility. This is a "Bumper Lift," designed to fit curved and/or slotted vehicle bumpers for lifting. It can also be used as a lifting hook when the Hi-Lift is employed as an overhead winch. The company also provides at extra cost a "Loc-Rac," locking brackets which secures the Hi-Lift onto a pickup bed rail, in a passenger car trunk, or almost anywhere in a motorhome, camper or 4WD vehicle.

In addition, Hi-Lift manufactures the

Red Viking, a multiple-tool device that includes pliers, pipe wrench, hatchet, nail puller, prybar, screwdriver, wire cutter, hammer and wire stretcher. This tool could also prove useful to those engaged in a motorized bug-out situation.

Evaluation—The Hi-Lift Jack long has been a utility item among 4-wheel-drive vehicle users, sportsmen, racers and workaday folk alike. It is an exceptionally well-built piece of equipment. The Hi-Lift's strength of construction and its 3 1/2-ton load capacity make it useful for many kinds of vehicles.

Priced at about \$39.95, suggested retail, the Hi-Lift is a true bargain. The "Bumper Lift" sells by mail order from the manufacturer for \$12.95, plus \$1.60 for postage and handling. The "Loc-Rac" goes at \$12.95, plus \$1.50, and the Red Viking carries a mail order retail price of \$12.95, plus \$1.50 for postage and handling.

These equipment items and additional information are available from the Hi-Lift Jack Company, P.O. Drawer 228, Dept. ASG, Bloomfield, IN 47424; telephone (812) 384-4441. •

M38 Rifle, 6M Pistol:

SPACE AGE AIRGUNS

Here's a pair of winners from RWS . . .

By Bob Clark

THINKING BACK to my days of crew cuts and white buck shoes, it seems to me that the airgun was an integral part of American youth. Progressing from squirt guns to BB guns and on into airguns was "nature's way." Well, at the time I might have been right but, one only has to take a close look at the new crop of airguns currently on the market to realize advancements in airgun technology have produced a totally new breed from what I used to search out and destroy meadow muffins with.

Of the many brands of airguns on the market, RWS is certainly one of the most respected. Distributed by Dynamit Nobel, the RWS line of rifles and pistols exemplifies the finest in airgun design and state of the art technology. Models in both the pistol and rifle lines are offered for the beginner all the way up to the Olympic contender.

As airgun quality and dependability have made great advancements the uses for them have also expanded. Airguns can now be found in Olympic competition and are a viable means for securing small game.

Two of the more popular RWS airguns are pictured here. The Model 38 Rifle, a relative newcomer to the line-up and the Model 6M Match Grade Pistol.

Rifle—Introduced in 1985, the Model 38 Rifle fits midstream in the RWS line-up. Weighing in at approximately 8 pounds, the 38 has a total overall length of 45 inches and a barrel length of 19 inches. The stock has a stronger construction to withstand higher power and is formed with a comfortable cheekpiece. A padded butt-plate is also standard on the Model 38. Precision sights make tight groups almost simple, even for the beginner. The foresight is a tunnel assembly with provisions for interchangeable inserts. The rear sight is a micrometer type, and is finely adjustable for elevation and windage. A rigid mount base is also fit for use with peep or telescopic sights.

The old "pump-up" routine is also a thing of the past with RWS. Our Model 38 produced a velocity of near 930 feet per second with a single cocking. If numbers don't mean much to you, how about penetration to page 659 of the Los Angeles



Shooting from our portable TRC bench, the Model 38 produced continuous one hole groups. A single stroke of the spring-piston system produced velocities over 900 feet per second.



When the barrel is closed a tight seal is assured with an O-ring surface mate.



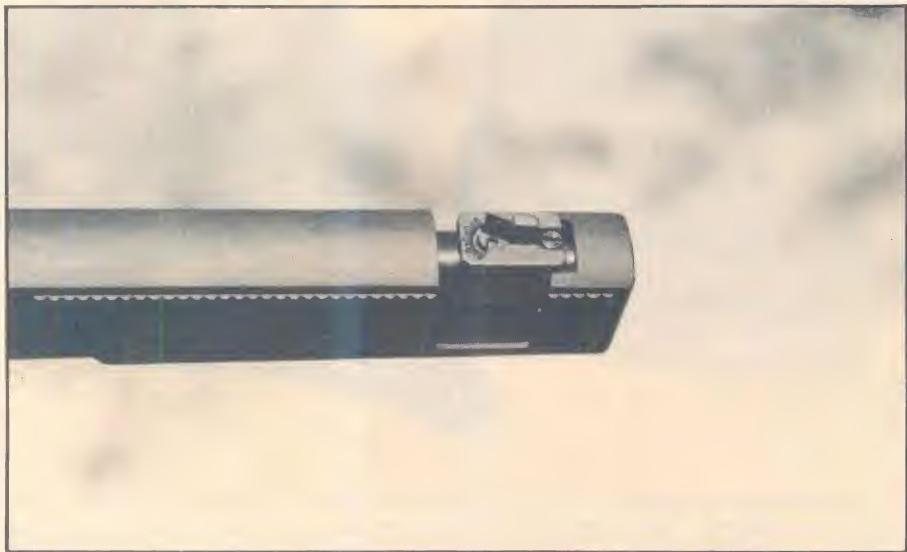
Rear sight is a micrometer type offering fine tuning.



The easily operated safety goes on automatically each time the rifle is cocked.



The RWS 6M air pistol looks like something right out of Star Wars and is just about as technically advanced. Although designed with competition in mind, this air pistol will find its way into the hands of many happy hobby shooters.



ABOVE—The front sight is an adjustable blade type assembly.



Cocking is achieved by pulling barrel shroud forward, to release, and then twisting and folding downward. Spring-piston design produced 420 feet per second velocity. New wooden grip features adjustable base.

phone directory! Obviously this is no toy but a powerful tool with possibilities far surpassing those of its predecessors. Shooting from a support produced one-hole groups. Out back, the rifle proved an excellent tool for pest control and gathering small game.

Pistol—While the number of pistol models in the RWS line-up aren't as numerous as the rifles, all the bases have been covered with no loss in precision or quality. Currently four models make up the pistol line. At the low end is the 5G which is designed primarily for the hobby shooter. The 6G comes up next and is presented as an inexpensive match grade pistol. The two top dogs in the RWS pistol line are the 6M and 10. For our purposes we chose the Model 6M.

The RWS Model 6M was designed for the serious match competitor and features a number of refinements which make it one of the top match air pistols in the world. Available only in .177 caliber, the 6M has a velocity of near 430 feet per second. The trigger is an adjustable two-stage arrangement with an automatic safety. The all important sights are the finest we've seen on any pistol in this class. The rear is a precision click micrometer while the front is an adjustable blade type. Weighing in at 3 pounds, the 6M has the same barrel as the Model 10 and an adjustable wood match grip. Overall length is 16 inches.

While I don't claim to be match shooter, both the RWS model 6M and 38 made me feel like I couldn't miss. The accuracy of both is astounding to someone not familiar with current airgun technology. However, the real fun didn't come from punching targets. I made my way over to an old dump where I occasionally stalk varmints. The local rat populace would've been much better off had Diana, manufacturers of RWS airguns, kept this line in Germany. At distances I never believed possible with other than a firearm, I was picking off the rat pack with systematic ease. Furthermore, on a recent outing to a friend's desert hideaway, the Model 38 was used to secure the evening's meal of rabbit cacciatore.

While I hadn't paid much attention to airguns over the last 15 years or so, my experience with the RWS models was a real eye opener. There are definitely a number of good reasons for owning a good quality airgun. Airguns provide a very inexpensive means for practicing basic marksmanship skills. Airguns can be used in areas where firearms are out of the question. Airguns can be used for pest control where safe. Airguns remain a good and inexpensive way to introduce newcomers to the sport of shooting. And, last but not least, with their acceptance into Olympic competition in 1984, these pistols and rifles are nurturing a whole new dimension of sporting activities for the whole family. ●

With Module Insert:

BACKUP LITE

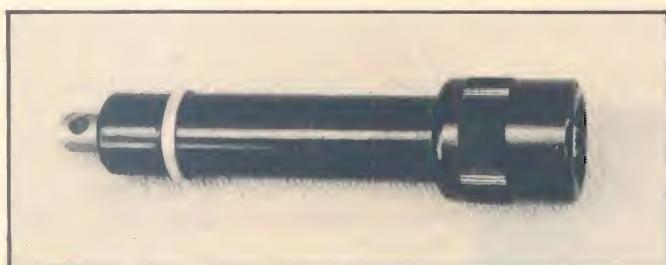
A 3.5-inch flashlight for your keyring, featuring a unique modular insert with a 1,600 candlepower lamp . . .

Staff Report

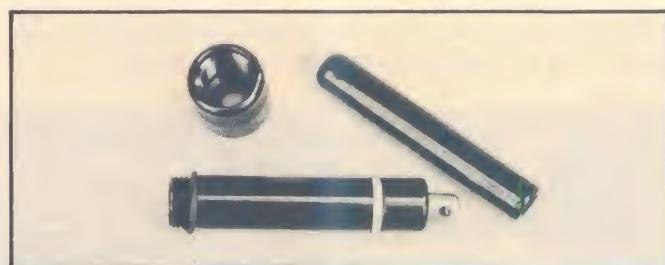
NEED a small portable flashlight you can carry with you at all times? Consider the Backup Lite from Armament Systems and Procedures of Appleton, Wisconsin.

The patent-pending design of this 3.5-inch long, matte black, flashlight with brass trim incorporates a unique alkaline replacement cartridge instead of the conventional batteries. The replacement cartridge has a shelf life of five years and runs for 1.5 hours. Sealed in the unit is a 1,600 candlepower lens and lamp. The case is aerospace aluminum. The brass keyring attachment at the base of the Backup Lite doubles as the button to operate the device. It can also be operated by tightening down the screw-on lens cap. The cap features an O-ring seal for protection against moisture.

The Backup Lite sells for \$9.95 including alkaline cartridge, and extra inserts sell for \$2.95 each from Armament Systems and Procedures, Inc., Dept. ASG, Box 356, Appleton, WI 54912; phone (414) 731-8893. A color catalog of the complete ASP product line is available for \$2. •



The Backup Lite is 3.5 inches long and has a matte black aluminum case with brass trim.



A unique alkaline replacement cartridge with enclosed lens and lamp comes with the Backup Lite.

The 1,600 candlepower lamp can be operated by pressing down on the keyring attachment at the base of the flashlight, or by tightening the screw-on cap.



Maintenance:

WINTERIZE

A few bucks and a little time is a slight price to pay for sure starts and smooth riding on cold mornings . . .

By Barry Smith and Jerry Younkins

PREVENTIVE MAINTENANCE is a byword of the self reliant and it is no joke that an ounce of prevention is worth a pound of cure. There is, perhaps, no clearer area of application than the process of winterizing your vehicle. It goes without saying that a few bucks and a few hours time is a slight price to pay for sure starts and a smooth trip on those cold mornings to come. Your efforts will help curtail the prospects of being stranded in sub-zero weather. This can be better appreciated in light of the fact that every winter a number of unprepared motorists freeze to death or suffer the pain of frostbite and/or hypothermia.

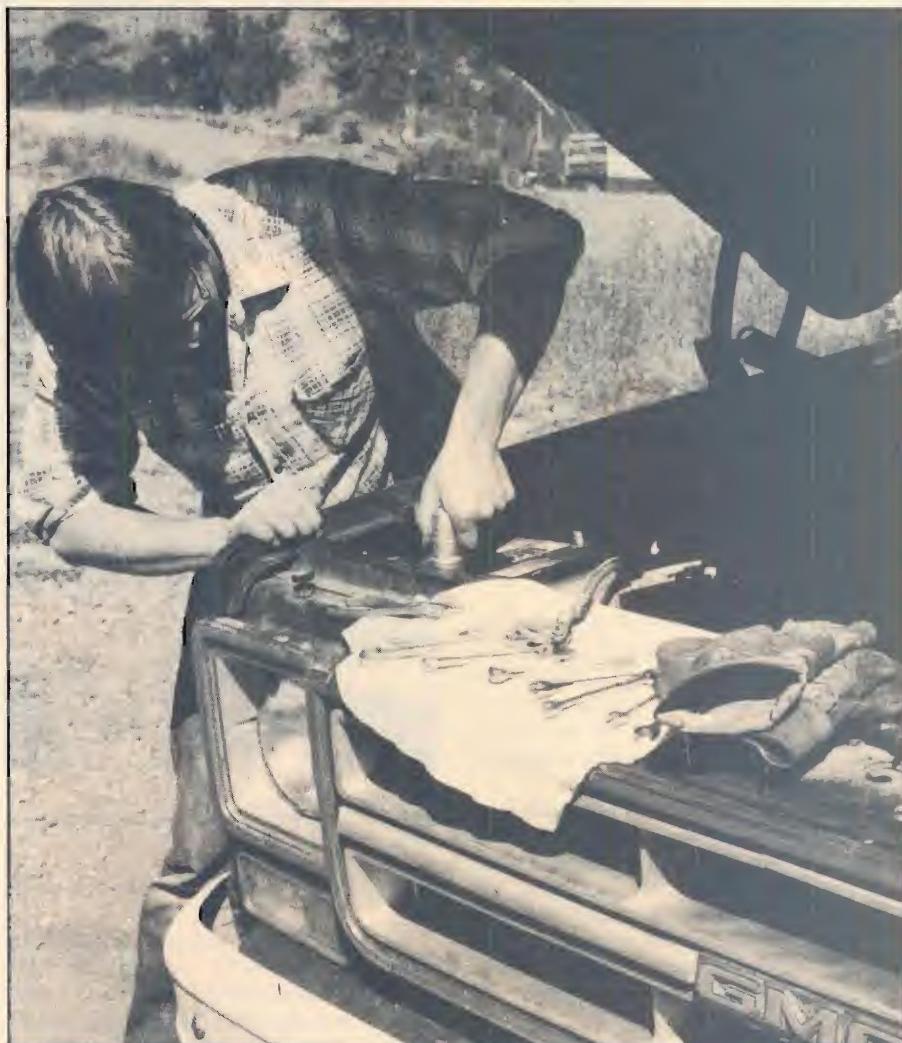
The advice contained in this article is of a generalized nature, although valid for all vehicles, but we suggest that you consult your owners manual for more pertinent information regarding your own vehicle. Remember that the well cared for vehicle has a tendency to stay user friendly.

One point of extreme importance. Should you become stuck in deep snow make absolutely certain that the exhaust hole of your tail pipe does not become plugged or clogged with snow as this can asphyxiate the occupants of the vehicle.

Initial Steps—Preparing for winter's worst will be much easier if the engine compartment and undercarriage are thoroughly cleaned with a high pressure sprayer. Engine degreasers are available in spray cans and aid in removal of accumulated oil and grime. Remember that potential trouble can be camouflaged by caked on grease and work will proceed quicker and easier on a clean vehicle.

Check the condition of all hoses, belts, wires, linkages and accentuator cables. Linkages are the steel rods that connect left and right wheels together and accentuator cables are those that activate parking brakes and manual throttle and choke cables. Hoses should feel firm to the touch rather than spongy or mushy when checked at operating temperature. Replace any hoses that bulge or collapse at high rpms.

Check all fluid reservoirs for level and quality of fluids. Cold weather thickens oil so a multi-viscosity oil will speed cranking. This means the oil is composed of several



Battery terminals can be easily cleaned with an inexpensive terminal cleaner.

different oil weights such as the 10-W-40 variety which can protect under hot running conditions but can act thinner under cold conditions allowing better all-around lubrication. The winter months are also the time to keep your gasoline tank closer to the full reading. Running near empty may induce a buildup of condensation in the fuel tank. This in turn may cause an improper fuel mix and adverse performance.

Verify operation of heater and check it

for leakage also inspect the fan/heater defrost mechanism as well as the window defogging systems on cars that are so equipped. Fresh air vents should be free of debris.

All belts should be inspected for cracks, slick or worn areas and checked for proper tension. The depth of deformation observed in the center of the longest span of the belt should be no more than one half inch. Test should be conducted with the ▶

WINTERIZE



Check coolant level and quality. Inspect the radiator cap for weak or worn seals and check hoses leading to the overflow reservoir.

engine off but warm.

A well tuned engine will go a long way towards preventing hard starting on cold mornings and will also save money at the fuel pumps. The automatic choke can cause difficulty if incorrectly set for cold conditions. Air, gas and oil filters should be inspected and if dirty discarded.

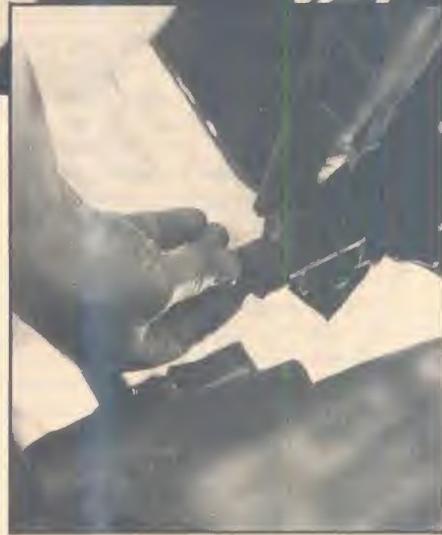
Ensure that wiper blades are fresh as they will have their work cut out for them in the cold weather months. Poor visibility can cause an accident as quickly as any other source. If the car has windshield washers be sure that the reservoir is filled with an anti-freeze washer fluid of the type recommended by the manufacturer.

Electrical System—Ensure that headlights, brake lights, tail lights and turn signals are in proper working order. Both winter storms and long stopping distances make these lights quite important.

Other systems that deserve close scrutiny are the starting and charging systems. Tow trucks make more stops for dead batteries in cold weather than for any other reason. Most garages will perform free charging system tests providing a specific gravity reading on each cell. Sealed maintenance-free batteries can be checked for their charge holding ability also. Recharge any battery that is low and replace any that will not hold a charge.



Clean the carburetor throat and choke assembly with a spray carburetor cleaner after removing the air cleaner.



ABOVE—Loosen the pet cock at the bottom of the radiator to drain sufficient coolant to allow the desired quantity of fresh antifreeze to be added. Add antifreeze to lower the freeze point of the coolant. Consult the antifreeze container label or a qualified mechanic.

The battery cable connections should be clean and tight on the terminal. An inexpensive terminal cleaner will help. Check cables for wear also. Auto supply houses carry a corrosion preventive that can be applied to the terminal. Just as eye protection is a must for the shooter, the same rule applies when cleaning the battery terminals and casing. The corrosion is highly acidic and can damage the eyes. Never smoke around a battery for it generates hydrogen gas (our moon rocket fuel) as a by-product of charging and can explode if exposed to spark or flame.

While giving your car its overall inspection check wires for fraying or damaged insulation and for secure and clean connections. Ignition parts can be effected by moisture so inspect distributor cap for cracks which allow moisture to enter.

Cooling System—The cooling system is the third most common cause of highway breakdown. This may be in part because the cooling system is often overlooked by car owners. Fortunately it is also easy to inspect. Remember overheating can occur in cold weather as well as hot.

Start by cleaning with a hose or brush the radiator, as it will provide better service if clean. Next turn your attention to the radiator cap, checking the rubber gasket to see it is not missing, dried-out or broken. Inspect the filler neck to be sure the cap will close and seal properly.

The condition of your antifreeze is the next consideration and color will reveal a great deal. Coolant that looks rusty or reddish hued should be drained and the cooling system flushed. Coolant should be replaced every two years.



Check tire pressure at least monthly, as the pressure fluctuates one pound with every 10 degrees F. drop in temperature.



Check electrical connections around the starter for tightness and lack of corrosion.

The level in the coolant reservoir should be an inch from the top on cars without a coolant recovery system and on those with a recovery system, up to the top. The recovery system is a plastic container located, most often, next to the radiator. This container should be filled to the correct level as indicated on its surface and this level is apt to vary from winter to summer.

Coolant will be a blend of half antifreeze and half clear water. An inexpensive

instrument called a hydrometer can measure the protection level of the fluid. The 50/50 mix will protect your engine down to a chilly -35 degrees F., covering you in all but the coldest areas of the U.S.

The thermostat should be checked to ensure it is opening when your vehicle reaches its normal running temperature. After the engine has been running for ten minutes, check whether you can feel warm coolant passing through the upper radiator hose.

An important warning should be added on the subject of antifreeze. Most people use a tank, bucket or pan to drain the old fluid into. Use extreme caution if you are a dog owner as canines seem to have a taste for this poisonous mixture and kidney failure is a hard way for your pal to go. Protect your dog and immediately put the spent fluid into plastic capped jugs to be properly disposed of.

Tires, Brakes, Suspension—Tread wear and tread type on tires become crucial during icy or wet conditions. Those who live in the mountainous or northern areas should invest in chains and studded tires. Having held a job in the desolate winter mountains near the Colorado-Wyoming border I can attest that proper tread and chains are a fact of life as well as a load of cement blocks in the back of the pickup.

Never mix radial and non-radial tires on your vehicle. Check air pressure at least once per month and before any long trip. Correct pressure will prolong tire life and save gas. Every 10 degrees F. drop in temperature will cause air pressure in your tire to drop one pound. Do not reduce the pressure to increase traction on slick surfaces for not only does it not work but it can ruin your tires.

Equally as vital as tire conditions is the condition of your brakes. Brakes which tend to pull to one side or the other on dry road surfaces have a tendency to lock on ice, a major way to invite a wreck. Except for checking the brake fluid level, inspection of this system should be undertaken by a competent professional.

A word about suspension systems. Bouncing and rocking due to worn suspension is aggravated by slippery road conditions. If you are experiencing a marginally unstable ride in fair weather correct the problem before it really sends you out of control.

Fall is an excellent time to lubricate chassis and suspension parts since water and ice have a tendency to wash grease out of steering linkages and lower ball joints. This is also a good time to check the fluid levels in the differential and manual transmission, often neglected during home maintenance.

There are many different kinds of preparation. Getting the vehicle ready for adverse driving conditions may not have the same urgency for some as food storage and practice with defensive firearms, but then a breakdown in a blizzard is no picnic either.

Happy and safe motoring! •

Splat! Splat! Splat!:

SEMAUTO PAINT POWER

Adventure Game's MK IV Marking Pistol fires 8 shots as fast as you can pull the trigger . . .

Staff Evaluation



MOST OF YOU are familiar with and may have even played one or more of the various paint pellet gun games which have become popular around the country. These games are the adult version of "Capture The Flag" which so many of us played as kids.

Referred to as "The Survival Game," "Adventure Game," "Splatball" or other names usually designating the organizations which operate them, the games are played at a number of locations, often in rural settings. The players, after paying their fee, suiting up in camouflage and donning protective eyewear and/or masks, separate into opposing groups and set about splattering each other with paint pellets fired from carbon dioxide-powered pistols or rifles issued by the game operator. This mock carnage continues until one side has been obliterated and/or its flag has been captured by the winning team.

The first CO₂ guns used, many of which are still employed at these games, fired only one shot at a time and required reloading for each additional shot. This naturally took some of the realism and fun out of the games, since single-shot firearms in real-life confrontations have long since been replaced with modern semiautomatic



ABOVE—"Victory Through Superior Paint Power" is the motto of Adventure Game of Palmyra, which supplies its players with the 8-shot semiautomatic pistol.

or full automatic weapons.

But semiautomatic paint pellet guns have begun to make their way onto the scene. Adventure Game of America, with 35 playing fields operating in this country, supplies contestants with an 8-shot semiautomatic CO₂-powered paint pistol that fires .60 caliber paint balls as fast as you can pull the trigger, providing a higher degree of realism and more excitement to the game.

Adventure Game of Palmyra, the only Adventure Game of America playing field operating in New York state, supplied this magazine with one of their semiautomatic pistols for evaluation. *American Survival Guide's* editors were impressed.

This sturdy, metal and plastic CO₂ gun resembles something looking like a cross between a .357 magnum revolver and a 12

gauge shotgun. It's called the Adventure Game MK IV Marking Pistol.

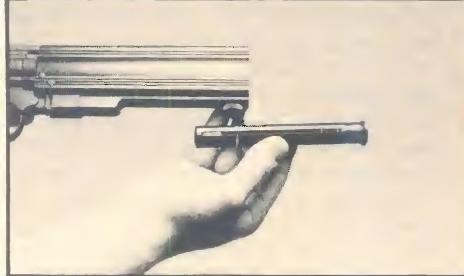
The grips are removed to insert the CO₂ cartridge which is then tightened in place by a screw on the butt of the pistol. Once the CO₂ is in place, a retaining screw underneath the muzzle is loosened and the loading tube is removed. Next a tube of water-soluble paint balls are poured into the bottom opening in the barrel and the loading tube is replaced and fastened down with the retaining screw. You're now ready to do battle.

On test firing, the staff found that this gun was effective from a range of up to about 30 feet. Beyond that, accuracy and velocity begin to be seriously affected. About three magazines full of paint pellets were fired through the gun before the CO₂ cartridge began noticeably losing its

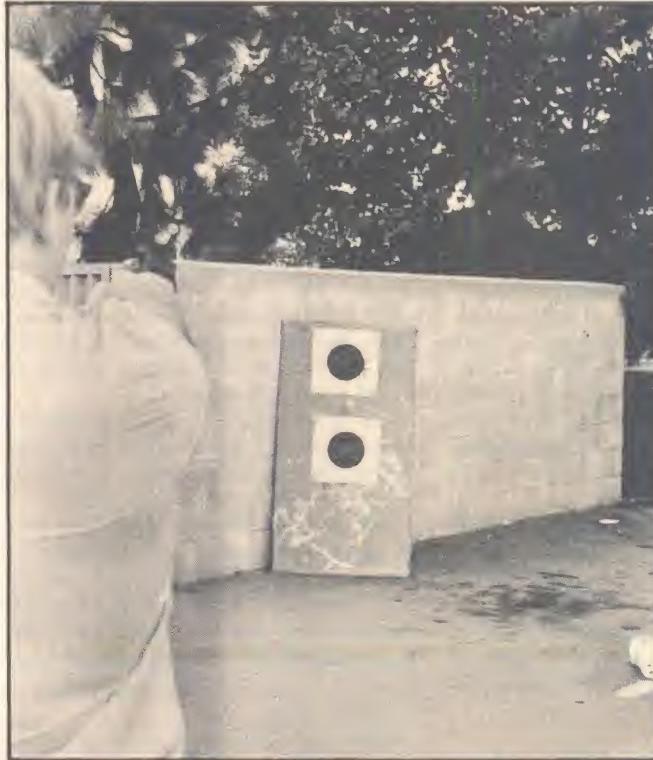
power, further affecting the velocity and accuracy of the pellets. Staff members concluded that after firing about 25 shots, it's probably time to replace the CO₂ cartridge for best results.

On the whole, staffers felt the pistol worked well. There were no mechanical malfunctions during testing and the pellets were repeatedly on target. This is a fine weapon with which to splatter your enemies, and it gives you a fighting chance should you suddenly encounter more than one opponent and have to shoot it out during the game.

For more information about the pistol and where you can play the game, contact Adventure Game of Palmyra in Palmyra, New York, at (315) 597-2699, or the Adventure Game of America nearest you. Happy Hunting! •



ABOVE—To load the pistol, loosen the retaining screw underneath the muzzle, remove the loading tube and pour a tube of pellets into the bottom hole in the barrel, then replace the loading tube and tighten down the retaining screw.



ABOVE—A CO₂ cartridge is inserted between the grips and tightened in place with the piercing lever on the butt of the pistol. Tighten the cartridge down quickly or too much CO₂ will be lost.

LEFT—A paint pellet, just to the left of the upper target, flies toward the bull's-eye during rapid fire exercises with the MK IV Marking Pistol.

A Challenge:

TOTING TOTS

Taking toddlers into the wilderness can be a delightful, rewarding experience . . .

By Larry and Karen Wells

WHAT WOULD HAPPEN if we have to take our children, 5 years of age and under, to our mountain retreat in a survival situation? Car camping with babies can be a challenge—What about backpacking with babies and young children? How would we carry them and all the necessary equipment?

These questions went through our minds in our family's early years. Being avid outdoor folks it was hard to give up when the little ones began arriving, so by trial and error we found shortcuts making it possible to enjoy the wilderness with tiny tots, whether for fun or surviving upheaval.

Packs—For infants up to 6 months old, a front pack does a great job leaving your own back free for a standard backpack. The front pack holds the baby's head up and keeps him where you can see him to pat and love in a moment of distress. Mom can even nurse a baby in the front pack if needed. The first couple of months baby will want to face toward your body. When a little older baby can face outward.

An Indian cradleboard is handy around camp to carry the baby. When strapped in a cradleboard, your baby can be leaned against a tree and watch while camp duties are handled. It has the advantages of a plastic infant carrier without the bulk and awkwardness.

When youngsters can hold up their heads and want to look around, a Gerry baby pack attached to an external backpack frame (pack sack removed) works well. Using stuff bags, additional gear can be attached to the sides of the baby pack leaving the bottom of the frame for a sleeping bag, pad and/or tent. Depending on the child's size, this set up will handle a child up to 2 or 3 years old.

When hiking, periodic stops (every 30 minutes to an hour) for toddler exploring or treats helps prevent crabbing and boredom. Young children will also keep a better temperament if allowed to walk at times (terrain permitting) and to ride on someone's shoulders and out of the baby pack for awhile.

Clothing—Diapers are a challenge. Dis-

posables are too bulky for packing and cloth diapers a nuisance. We've settled on a happy medium. We carry a couple of disposables for each day and five single layer gauze diapers. Prefolded, triple layered cloth diapers are hard to wash, take too long to dry and are bulky. We try to catch the bowel movements with the disposables (lots of luck). The disposables can then be burned with a hot fire. If you bury them or put them under rocks, animals dig them up and drag them around.

Cloth diapers are washed as soon as possible with biodegradable soap (not in the water source) and dried hanging from trees or even your pack as you hike. Let the sun do the bleaching. If time permits, boiling cloth diapers can also help.

Two extra pairs of plastic pants as well as a change of clothes should be carried. There is always a mud puddle, stream or a "major mess" (even with the best of babies) to deal with.

Bright colored clothing and even a sheep bell make it easier to keep an eye and ear on the toddlers, however, depending on the situation, you may need camouflage for protection. Bring what clothing fits your needs.

Thrift shops are a great source for tiny gloves, boots, warm cool clothes and other hard to find, expensive items.

Tiny tots under two years old are unable to regulate the temperature of their bodies like the big folks, so keep this in mind when buying clothes. They must be extra warm for cold weather, yet not so bulky they can't move, and avoid a tight fit that would restrict circulation.

For warm weather, clothing should be breathable and light yet sure to cover delicate skin as babies sunburn easily and insects love that soft, tender skin.

Wet weather requires wind and waterproof outer garments to prevent major heat loss. As with adults, the layer principle works best (i.e., T-shirt, long johns, long sleeved shirt, sweater, jacket and wind/waterproof shell). This also allows you to help them regulate body heat by removing or adding layers.

Remember—the head loses 80 percent of the body heat and a soft, bald head is a

favorite landing field for blood thirsty insects (I can testify to that, unfortunately, as I have regressed back to bald!). A sleeping hat along with heavy pajamas or a bunting are a must. Little tykes seem unable to stay in sleeping bags or under the covers.

During the day, to keep feet warm, try putting plastic bags between layers of socks. The plastic helps hold the heat in.

Food—Nursing Moms have no problem with infants, but to be safe always take a bottle and powdered formula in case something happens to mom. Powdered formula and cereal are light weight and it is a good idea to pack extra. It seems youngsters (like us oldsters) eat more under stress in the wilds.

For older children some easy to prepare yet tasty goodies include instant hot cereal with brown sugar, dried fruit, finely chopped nuts and instant powdered milk. Some good trial foods we use include dried fruits, gorp (granola, Reeses pieces & raw nuts), fruit leather, cheese and raisins, small pieces or ground up jerky, and peanut butter mixed with honey and powdered milk (use enough powdered milk so it isn't too sticky to handle) makes a good candy.

Anything adults eat can usually be mashed with a fork for tiny ones (not infants) to eat. A pleasant drink is made by mixing a teaspoon of brown sugar with a half cup of instant powdered milk, then on the trail, add one cup of hot water. This gives the child protein and carbohydrates and works as a quick pick me up to restore energy which restores body heat.

For us it is easier to constantly munch while hiking rather than taking a lunch break. This along with a good breakfast and dinner keeps our energy reserves up.

Shelter and Sleeping—As we both teach wilderness survival and have for over a decade, we just used a poncho or piece of visqueen if a shelter was needed but were generally able to find some existing type of shelter that would "get us by." However, we found this didn't work for babies and young children. A tent makes it much easier to keep active tots warm while sitting



ABOVE—A carrier for children aged 6 months to 3 years can be made from an old knapsack. The carrying straps can be used to carry a load or fastened to an external frame for more support.



ABOVE—To use a Gerry baby pack, the child should have good self support. A bedroll, sleeping bag, tent, etc., can be tied under the pack and secured to the frame. Diapers and other necessities can be put in the pocket under the pack's seat.



FAR LEFT—When able to support its own head, the child enjoys being able to see where it is going, and can be carried facing outward.

LEFT—Some type of insulation from the ground should be carried to change diapers. A closed cell foam sleeping pad works well, or some brands of indoor/outdoor carpet with a foam back that will not absorb moisture.

out rainstorms and early snows.

A large lightweight two man tent such as the winterlight by Early Winters, will sleep two adults and up to three small children up to age four, depending on size. Gear, however, must be left outside.

Sleeping bags that zip together will generally sleep two adults and two small children. It is helpful to use a small down baby blanket to cover the tiny tots. A good down blanket can be made from old down jackets, sleeping bags or pillows purchased at thrift stores. Since down doesn't hold up well under repeated washings, and because sticky hands and dirt call for those repeated washings, it's nice to have a washable cover that zips on and off. We use flannel so the blanket is soft. These lightweight down baby blankets and adult size down vests work well to cover napping youngsters. They are also handy for bundling cold little bodies on chilly days.

We sleep one of our children (the 4-year-old) in an expedition, polarguard coat by pinning the bottom closed and zipping him in. His head, poking out the neck hole of the coat, is covered with a warm hat.

Doubling up on the use of clothing or sleeping gear will cut down equipment weight which is critical when packing small children.

Precautions—Bugs can be a nuisance and worse for the little people unable to swat and keep them off. A mild insect repellent is a must, but be careful not to put it where the child will rub it in his eyes. For the very young child or baby insect netting is the best way to go.

When taking children into the wilderness always have two responsible adults present. If something happens to one of the adults, the other can get the children to safety.

Start early to teach young children the basics involved in taking care of themselves, how to build a safe fire, and what to look for in shelter. Especially stress the importance of waiting for someone to find them.

Campsites should be located away from cliffs, not too close to the water's edge and in a small clearing if possible so you can keep an eye on the "bundles of energy"—giving them space to roam before they get in the bushes. It's also a good idea to check for ant hills, poisonous snakes or plants, and wasp or bee nests. As soon as the children can understand, teach them about stinging nettle, poison ivy and other harmful plants and insects.

Band aids (and plenty of them), a pair of tweezers and needles are a must for first

aid kits. Slivers and small stickers are a never ending problem and band aids are a cure-all for minor injuries (they also help keep dirt out). Tweezers help remove wood ticks when they stake a claim on youngsters and adults as well. Be sure to check morning and night for the little critters if they are in the area.

Sunscreen is another necessity. Sunburned babies are hard to dress and sleep with and can be down right cranky.

Rewarding—Taking toddlers and even babies into the wilderness can be a very delightful and rewarding experience when the necessary preparations and precautions are taken. Now is the time to learn what works for your family—what type of equipment, food and shelter is needed and how far you can travel in a day. Will your children feel comfortable in strange surroundings? Now is the time to deal with their fears—not when it is a life or death situation—not when it is a forced march with added dangers and stress.

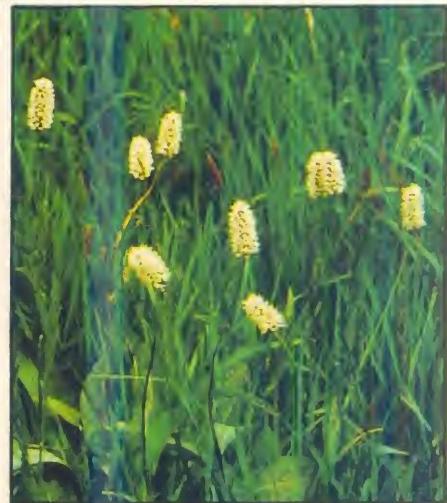
Many peaceful moments have been spent sharing a special rock, pinecone or snail shell with excited youngsters in our family, and sharing knowledge with them that may help them survive less peaceful times in the future. ●

Carbohydrates:

EDIBLE ROOTS

These plants have been the staples of many cultures throughout history . . .

By Larry J. Wells



Bistort is seen here in its first stage of growth, first stage of growth with rhizome, and in bloom.

LANTS WITH EDIBLE roots, tubers or rhizomes have been the staple of many cultures throughout history. The United States today would be lost without potatoes.

Early Indian tribes guarded, often violently, their gathering areas to protect wild root crops. In Idaho, the Bannock War in 1878 was fought over an area now referred to as the Camas Prairie. This area produced the blue camas bulb in abundance, which was the staple of the Bannock and Shoshone Indians of the area. When white settlers started plowing the lush crop producing meadows, the Indians resisted with vengeance but lost this key part of their livelihood.

Beginning with Lewis and Clark, early mountain men quickly realized the importance of wild subterranean edibles. When Lewis and Clark entered the Lemhi Valley in East Central Idaho, they traded with the Shoshones for large tortilla type biscuits the Indians called couis. These "biscuits," said to be as large as a saddle, were made from what is now commonly called Biscuit-root.

Further to the west in eastern Washington and Oregon and in western Idaho Lewis and Clark also shared with the Nez Perce blue camas bulbs which had been cooked in large steam pits.

One of the sought after tubers was the Yampa root. Due to its importance to the early mountain men and Indians, Yampa has left its name on a river, valley and town in what is now Colorado.

The first years the Mormon settlers were

in the Utah Territory in the Great Salt Lake Valley, the Sego Lily, the wild plant with a highly starchy edible bulb, is reported to have saved their lives when their crops failed. It is now Utah's state flower.

While plows and cultivation have destroyed many of the productive foraging areas making it difficult to sustain life as was done by the early Indians, many areas still produce abundant root crops to supplement one's diet and provide foraging for the survivalist in an emergency situation.

Most wild edible roots, tubers, rhizomes and bulbs are high in starch content providing carbohydrates. This fills a much needed gap in a wilderness forager's diet which generally consists of meat and leafy greens with very little sugar intake.

Wild plants to be eaten should be positively identified and used sparingly to start as a person may have an allergic reaction to a wild plant just as they would a domestic plant (strawberries for instance). Anyone planning on using wild foods in an emergency situation or on wilderness expeditions should experiment and use them prior to the "emergency." A taste must be acquired for many of the wild plants the same way a taste has to be developed for some domestic plants and is much easier accomplished when not under the stress of a "bad situation."

The following plants are commonly found in the intermountain region stretching to the West Coast and are abundant and easily identified. They are not only edible but palatable:

AMERICAN BISTORT (POLYGONACEAE *Polygonum bistortoides*)

Other Common Names: Smartweed, knotweed, snakeweed, bistort.

Habitat: Moist areas in open meadows, along stream banks, in mountain canyons. Any area that is moist at least through the month of June.

Flowers: May to July—white flowers.

Elevation: 5,000 to 10,000+ feet, depending on latitude.

Size: 4 to 24 inches at the time of blooming, depending on elevation and latitude. Rhizome length will vary from 1 to 3 inches.

Edible Parts: Rhizome is very hard and chalky until cooked. Bistort should be peeled then roasted or cooked in a steam pit. A species of this plant is cultivated and used in Japan.

INDIAN POTATO (UMBELLIFERAE *Orogenia linearifolia*)

Other Common Names: Orogenia and Snow Drops.

Habitat: Moist soil—areas where spring runoff keeps soil very moist. Often found below melting snowbanks.

Flowers: March through May, generally as soon as the snow melts. White flowers.

Elevation: 5,000 to 7,000 feet, depending on latitude.

Size: 1 to 3 inches at flowering stage.

Bulbs: 1/4 to 1 inch.

Edible Parts: Bulbs may be eaten raw or cooked in any manner as potatoes. Peeling will remove any bitter flavor that might be present. Generally too small



A meadow is filled with Blue Camas in bloom. Inset shows a close-up of the Blue Camas in bloom.



Two species of Biscuitroot are growing side by side in this picture.



A Mountain Wild Onion plant is in bloom.



The Yampa plant in bloom and its root.



however to take the time to peel. May be roasted and mashed in rootcakes for preservation.

SEGO LILY (LILIACEAE *Chlochortus nuttallii*)

Other Common Names: Cat's Ear, Purple Eyed Mariposa, Star Tulip, Butterfly Tulip and Mariposa Lily.

Habitat: Generally dry open hillsides or dry mountain meadows and southern exposures.

Flowers: From April to August depending on elevation and latitude. Flowers are white, cream, yellow, purple, pink, salmon or scarlet.

Elevation: Generally 4,000 to 7,000 feet although, depending on latitude, they can be found up to 10,000.

Size: 2 to 18 inches when in bloom. The bulb's diameter is 1/2 to 1 1/2 inches.

Edible Parts: Entire plant is edible. Before blooming the green leaves and stem may be eaten raw or boiled. After blooming the seedhead can be eaten raw or boiled

Continued on page 60

Part IV:

FRESHWATER FORAGING

*Cold and warm water fishing gear and techniques,
ice fishing . . .*

By Richard Colagiovanni

(This is the fourth of a multi-part series on the equipment and methods of capturing fish and other protein sources in their freshwater habitats in North America—The editors.)

FOR COLD WATER game fish such as trout, salmon and lakers (lake trout), there are a number of tried and true methods of capture. All these methods take into account the time of the year and the habits of the fish during these periods.

The eastern brook trout is primarily an insect feeder. Fly casting, then, is usually at the top of the list for this species. There are basically two types of fly fishing, wet and dry.

The wet fly is designed to sink and must be cast with a line heavy enough to pull the fly and leader under quite rapidly. Fishing with wet flies in a lake or pond, the experienced angler usually lets the line go to the bottom, then retrieves it slowly upward. This is particularly true of nymph flies (wet flies tied to look like life stages of insects living below the surface). For river and stream fishing, particularly in fast water, all that is usually needed is to get the fly well under the surface and then keep it moving.

A special type of wet fly is the "streamer," tied to replicate a small fish. When fishing the streamer, either by casting or trolling, it's a good idea to make it dart about with a good bit of speed at times. Wet flies are more effective when the water is cold, and when there is little surface activity such as insect hatches. These conditions exist in early spring, late summer and winter when conditions permit.

The dry fly, by design, is a floater, and the fisherman must resort to more specialized equipment such as a floating line (usually double tapered), a fine leader, and a rod with stiff action to throw the fly out smartly for a feather-like landing. Dry flies are tied to simulate adult insects that hover over the water, such as mayflies, stoneflies and mosquitos. The best time to use dry flies are during late spring, when insects are hatching, and during mid-summer, before warming waters send trout into the deep areas and spring holes where they get suitable water temperatures and oxygen levels.



A child's sled fitted with a storage box can deliver ice fishing gear to the site.



Here is a homemade ice "creeper" constructed of wood, sheet metal, screws and spikes. Strapped to the foot, an ice creeper affords safe traction on ice.



Ice safety spikes, one for each hand, will allow the ice angler to survive if he falls through. These ice pick-like devices give traction to pull oneself upon the ice surface.



A serrated "spoon" or ice skimmer is used to open and maintain fishing holes.



Note hook placement and monofilament leader used with this live shiner bait fish.

Brook trout will hit a wide variety of lures trolled or cast, including spoons, spinners, spinner and worm combinations, etc. Light and ultra light gear (spinning) spooled with 2-to-6-pounds test monofilament is the best choice for casting these small (1/4- to 1/16-oz.) lures.

The most productive way to rod and reel landlocked and other salmon is trolling. During the spring, when surface waters are cool, salmon are usually feeding near the surface and off the mouths of tributary streams where smelt and other bait fish are spawning. Large streamer flies trolled either fast or slowly are effective near the shore or over shallow water area during this period. A long fine diameter leader with no weight attached, is best for surface fishing with streamer flies or other lures such as spoons or live/dead baits. Smelts and alewives are a prime source of food for salmon; when possible, the experienced fisherman uses them, or an imitation of them, for bait.

Salmon are attracted to active lures, such as spoons and spinners; so use a lure with plenty of "action," and one that possesses high visibility in the water. Medium to large size salmon feed primarily on fish, and this fact should be taken into account when selecting a lure. But don't discount the benefits of fly casting, even with smallish dries during certain surface feeding periods, as many salmon will also strike like brook and other trout when they are in an insect feeding mood. In addition, salmon and trout in nonfeeding moods will strike lures out of anger or territorial instinct.

When the surface waters warm up, salmon and trout go deep, with fishermen doing best at this time by using a weighted line such as lead-core, metal wire or downriggers. A fine leader of monofilament is a big help (2- to 15-pounds test depending on the quarry, i.e., 1-pound brookies to 20-pound lakers, etc.). The same lures employed for early season apply, along with a variety of slender minnow plugs. Fish congregating locales usually coincide with suitable cool water temperatures, ample dissolved oxygen levels, and schools of edible bait fish. The depth of many temperate climate lakes where this will occur will vary due to many physical factors but in many instances waters 25 to 80 feet deep will hold them.

The lake trout is a deep water fish during most of its feeding activity. In the early spring, lakers may be taken by trolling at the surface, but this is the exception rather than the rule. Best bets for capturing this fish include deep running lures and live bait fish. Lead-core, metal wire and downriggers are best for this purpose. Large spoons ("flashers," "dodgers," "cow bells") used ahead of live baits such as minnows, smelt and alewives are quite effective, but a single artificial lure, such as a spoon or balsa slender minnow plug, as well as a streamer fly, will do just as well when the right depth is found.

Many of the newer recording depth finders are sensitive enough to locate the "edge" or line of the thermocline where the fish tend to be during summer periods of water stratification.

It takes a fair bit of searching around to locate lakers in a feeding mood, and the deep water edges of reefs and shoals shouldn't be overlooked since these may be the areas where smelt, alewives, perch, etc., schools are located. In spring and early summer, depths of 20 to 45 feet are the normal production zone. Later in the summer, before the "fall turnover" (when the layered-stratified waters mix, water becomes essentially one mass of equally oxygenated temperature), deep holes down to 100 feet or more will possess the "living requirements" of the lakers.

Lakers will hit flies on occasion. This is true in the larger rivers and streams where lakers may be feeding in shallow water during spring and fall. Small streamers represent the small fish favored by them.

Whatever your choice of fishing methods, first find out what kind of food is available to the fish in the waters you intend to try. Choose lures accordingly. If smelts are the chief bait fish in the lake, use smelt pattern streamers, smelts themselves or tapered wobbling spoons. If the mayflies are hatching well, start with a good imitation of them. If standard procedure fails try the unusual. It might do 'em in.

Warm Water Fishing—A variety of factors, both of natural and human origin, are necessary to accomplish a successful fishing trip on fresh waters. Some factors that we have control over are the selection, maintenance, and ability to use properly the various equipment that is utilized with fish catching as the final objective. The knowledge to interpret a graph recording (i.e., depth, bottom type, identity of bait and prey species, etc.) is a learned skill. Properly setting up tackle, which in turn, is combining the proper rod, reel, and line for a given angling situation is yet another example. Even the correct hook selection (and sharpening technique) is of utmost

importance. These are just an example of controllable fish factors of human origin.

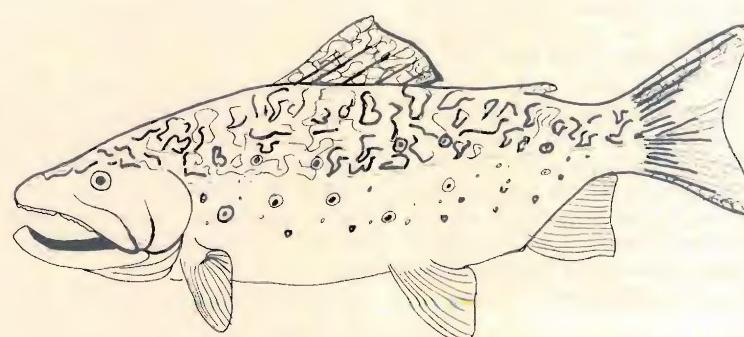
On the natural factor horizon there are many factors that affect fish. Some are: water temperature, light intensities, wind and waves.

In fresh water the predatory fish (large-mouth bass, smallmouth bass, pike, perch, etc.) respond in numerous ways to a variety of water temperatures that trigger and regulate feeding and spawning.

Let's follow a largemouth bass through a "year cycle" on a small New England lake (pattern described is pretty much the same across temperate climated North America).

In the winter season here in the northeast, bass, in the early winter with water temperature near freezing, seek out deeper sections of the lake for comfort (however significant dissolved oxygen must be present). Usually in these deep sectors the water is several degrees warmer. The overall lower water temperature of the lake also slows down the bass' digestive system, thus it feeds less often. But the bass will feed occasionally during the winter and these deeper holes are good sites to ice fish with live shiners.

In late winter and early spring, as the ice melts from the lake surface, and the protected shallow waters are heated up to say 40 to 45 degrees F., the bass returns to the perimeter (shoreline) of this body of water. Well, our friend the bass is no dummy. It will leave the deeper water refuge and will frequent the shallows for comfort, increased appetite (metabolism of cold blooded fish depends directly on water temperature) and the more abundant availability of prey (food) species (i.e., bluegills, shiners, yellow perch, etc.) which in turn are enjoying the heat wave in the shallows. Many "warm water" predatory fish can digest increasingly greater amounts of feed as the water temperature climbs until it exceeds the comfort/survival range. Then it may go into a dormant stage. If temperature rises still more the death threshold attributed to heat stress is realized. The angler is usually looking for a fish feeding in or near its optimum feed temperature range. For a largemouth bass, ►



BROOK TROUT

FRESHWATER FORAGING

this is 66 to 73 degrees F.

Northern coves of lakes/ponds tend to heat up faster in the spring, as the sun angle is more favorable, and bass in pre-spawn condition, if located, can be captured just about every cast.

Slightly later on in the season, when the water warms a bit more (mid 60 degree range) the bass will commence their spawning ritual. This is a great opportunity for the angler to catch heavyweight "deep bellied" specimens off the beds with rather stout tackle.

As the season progresses even further and water temperature increases, the mid-summer bass retreats back to the cooler, deeper dropoffs and holes. This short "migration" is done with the intent of trying to keep their (bass) bodies in their preferred comfort range (about 70 degrees F.). They remain in this deeper water most of the daylight hours, responding to bottom scratching lures (i.e., weighted plastic worms, crankbaits, jigs). At night the angler covers the shallower shoreline with a variety of surface lures (Jitterbugs, Hula Poppers, etc.). In-between times (not dark, or full daylight) the knowledgeable angler will "intercept" the bass midway between their favored habitats.

Come fall again, as the lake waters cool, the bass return for a brief stay in the shallows as these waters again provide them with food and comfort. Bright sunny days seem to produce more action.

Understanding this relationship of water temperatures as an indication of where the fish will reside helps to provide for a successful fishing trip.

Light—Again, using the bigmouth bass, light strength or lack of it affects his relative position on the lake. Biologically, the bass is unable to control the amount of light that enters its eyes, since it can't don a visor cap or sunglasses to shield its eyes, it must resort to other methods to prevent eyestrain. This can be accomplished by either the addition of more water (deeper vertical water column such as holes, channels, etc.) or by ducking under various structure for shade (lily pads, stumps, overhanging tree branches, docks, swim platforms, etc.). In many situations, cloudy or turbid waters will have fish at shallower depths than clear water lakes on the same day (conditions). Cloudy or dark days will usually mean fish will be shallower during the day. In many summer bass lake situations, bass wait for darkness before they feed in the shallows. Knowing these movement patterns, bass harvesters can concentrate their efforts in areas of the lake more apt to be holding the quarry.

Wind Waves—These are very important factors contributing to the feed locations of freshwater fish. On our bass lake again,

among other things, wind and waves provide oxygen, visibility variables, water temperature variances and food.

In early spring on the bass lake, if the wind is from the western quadrant, the water on the eastern shore will be warmer as the wind's friction "grabs" the warmer surface water and "pushes" it to that side of the lake. Here, with water temperature several degrees higher than the rest of the lake, this side will hold bait and game fish in a more comfortable zone. With these conditions in mind, the angler can concentrate on the windward side of the lake.

The physical action of waves either forming white caps or crashing on the shore, increases dissolved oxygen by actual mechanical aeration. Most game and pan fish feed actively in well oxygenated waters. This same wave action, depending on the bottom composition (mud, sand, silt, etc.) will increase the turbidity (lower visibility in the water, usually by suspended materials), which provides cover that concentrates the game (food) and bait species. I remember doing a "number" many times on bass, perch, etc. on the windward sides of ponds with "surf" running 1 to 2 1/2 feet. With oxygenated water and cover provided by decreased water visibility, the bait fish and prey fish (bass, large perch) concentrated in areas easily accessible to my casts.

The wind will also aid the angler by "rattling" shore vegetation. The branches and limbs that extend over the water, in the warmer months, will deposit to the water below, a variety of terrestrial (land based) insects that fish love to feed on. I recall a moderate day of wind several summers ago. A small reservoir along a dam had large leafed trees that extended over the water. The trees were loaded with caterpillars, which in turn were falling off the leaves into the water below due to the wind rustling the limbs. Seeing many swirls along the dam, I began to cast a small plastic worm (trying to duplicate the critters) and proceeded to catch plate-sized bluegills and bass with weights up to 4 pounds.

The angler who observes a natural phenomenon, and puts it to productive use will be rewarded with more fish.

Ice Fishing—Basic gear for ice fishing consists of a suitable mode of transportation. Foot power with a bucket, sled or toboggan in tow, or an "iron horse" (snowmobile) will deliver the fishing gear to the lake or pond site. Sometimes back bays and river oxbows are favored sites to wet a line.

Access through the ice cover is next on the agenda. Ice cutting, chipping and drilling gear can consist of axes, chisels, spuds, hand propelled drills and augers, and the gasoline motor drive counterparts.

When using any of the ice cutting gear, sunglasses or goggles are recommended to deter flying ice chips.

After a targeted lake is selected (known fish population, history of safe ice), sufficient ice is critical. I personally prefer a minimum of four inches of clear, hard ice. Six inches is even better. I've fished on the known shallow perimeters of ponds that *I know without a doubt*, are only waist or shoulder deep at best, the ice thickness being 2 1/2 to 3 inches.

Usually ice fishermen use two capture variations: live/dead bait equipped "tilts" or "tipups," and hand held jigging rods.

The tipup is essentially a means to suspend live bait fish below the ice. Many models have underwater reels (mine and many others' choice in lieu of the above-water reels that in many instances have a tendency to ice up) which signal a connected spring-loaded flag (bright orange/red), which in turn informs the ice angler a fish has hit the bait.

On the tilt reel, 30 to 40 yards of 25- to 40-pounds test braided nylon/dacron is a good rule of thumb. Connected by a small barrel swivel, is a 3- to 10-foot section of monofilament line, from 4- to 10-pounds test. For sharp tooth "critters" (pickerel, northern pike, muskies), heavy mono leaders of 17- to 40-pounds test are frequently used. Others choose brown/black braided wire leaders to deter the dentures. Hook selection for the ice bound angler can vary from size 10 and 8 for trout or perch, upwards to 6, 4, 2 for bass, pickerel and northern pike. Fishermen pursuing monster pike and muskies might opt for size 1/0 to 3/0 to tame their quarry. A dark brown (bronze) or black fine wire hook is preferred. One or two small split shot sinkers are usually placed several feet above the hook.

Bait—Live baits quite common used in ice fishing are shiners (both local and Arkansas pond varieties) and mummies, a common brackish water bait fish. An assortment of shiner sizes are recommended, with diminutive "pinheads" (1 1/2 inch) on the small end of the spectrum use for trout and perch seekers. For average pickerel, pike and bass applications, 3- to 4-inch shiners are a reasonable selection. Strictly for the northern muskie seeker, monstrous 5- to 8-inch baits fill the bill. This large and lively bait, in most instances attracts large predator fish, and for the serious pike foray, the larger sizes deter nuisance strikes of perch and small chain pickerel. Other "on site" captured and deployed baits include bluegills, yellow perch and suckers. It should be noted these larger baits might produce "false hits." Sometimes the tilt's trigger assembly might need

Continued on page 75

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EDIBLE ROOTS

Continued from page 55



A dried rootcake is made from Spring Beauty bulbs.

alough some species are more palatable than others (there are 40 reported species of *Chlochortus*). The starchy bulb is the part mostly used and may be eaten raw, roasted or creamed. The dried seedpods often stay into winter allowing a long gathering season if the ground is not frozen.

SPRING BEAUTY (PORTULACACEAE *Claytonia lanceolata*)

Common Names: Lance leaf, ground nut.

Habitat: Moist soil, valleys, mountain meadows and slopes often below melting snow banks, and snow runoff areas.

Flowers: April-August depending on latitude. One of the first flowers after the snowmelt. Dainty flowers are white with pink tint turning darker as the flower ages.

Elevation: 5,000 to 11,000 feet, depending on latitude.

Size: 2 to 8 inches when in bloom. Common size is 3 to 4 inches. The Corm (root) is 1/4 to 1 inch in diameter.

Edible Part: The entire plant is edible. The greens and flowers can be eaten raw or boiled. The corm can be roasted, boiled or eaten raw. It's better flavored if peeled although they are often too small to peel.

YAMPA (UMBELLIFERAE *Perideridia gairdneri*)

Other Common Names: Yamp, False Caraway, Wild Caraway, Squawroot, Ipo, Apah, and Bolander's Yampa.

Habitat: 8 of the 9 species of Yampa are found from Alberta and British Columbia in the north south to Arizona and New Mexico, and from the Pacific Coast to the eastern foothills of the Rocky Mountains. Found in open meadows and hillsides—generally moist areas in the spring and early summer months although the area can become bone dry in July and August when the plant is in bloom.

Flowers: Yampa blooms from July to September and has white flowers.

Elevation: 4,000 to 8,000 feet, depending on latitude.

Size: 12 to 36 inches when in bloom. The most common height is 12 to 18 inches. Tuber size is 1/2 to 5/8 inches diameter and 1/2 to 1 1/4 inches long.

Edible Part: Tuber is edible and can be gathered May through September, depending on elevation and latitude although it will be its best quality once the plant has bloomed, generally July/August. It may be eaten dried, roasted, boiled, raw or fried.

BISCUIT ROOT (UMBELLIFERAE *Lomatium*)

Other Common Names: Desert Parsley, Wild Carrot, Carrot Leaf, Fern Leaf, Parsley, Cous, or Whisk Broom.

Habitat: Out of the 80 species of Lomatium in the western states, 36 are in California alone. Biscuit Root is an early spring plant flavoring dry plains, open areas and often rocky soil, preferably southern exposures although one species seems partial to lodgepole stands.

Flower: Late April through late June. The plant is generally dead and gone by mid July. The flower is generally yellow or yellowgreen, white or whitgreen.

Elevation: 3,000 to 8,000 feet, depending on latitude.

Size: 2 to 12 inches high when in bloom, depending on soil condition. Roots range from turnip to radish shape to long and slender, depending on species. The turnip shaped roots are 2 to 4 inches long and 1/2 to 2 inches in diameter. The long root is 1/4 to 3/4 inches diameter and 4 to 18 inches long.

Edible Part: Roots may be eaten raw, roasted, boiled or steamed. They may also be used in stews. The roots are covered with a black thin skin which should be removed before using. The inside is a cream white and fibrous. Biscuit Root can be roasted and then mashed into rootcakes or dried and ground into flour then made into a tor-

Continued on page 66

UTILITY KNIVES

Continued from page 25

nickel silver bolsters. Despite its slight stature this is a working knife and allows great control and precision. The handle tapers and even on my large sized hands affords a secure three finger grip. This is one of my favorite small knives with a blade length of 2 1/2 inches and an overall length of 5 1/2 inches. Comes with a belt/boot clip style sheath at a suggested price of \$29.50.

KERSHAW FIELD KNIFE MODEL 1034

The model 1034 is what many would describe as a "hunin'" knife and it indeed lives up to that assessment. However this 5-inch drop point shines as a large utility pattern also. It has a synthetic handle and brass hardware, finger grooves and a harness leather sheath. As with all Kershaw blades, quality is impeccable. Metal is AUS 8A stainless. Retail is \$59.95.

PARKER CUTLERY MODEL J1392 HUNTER

Actually a commemorative of the 1986 Texas sesquicentennial, the J1392 is an excellent utility and hunting pattern and has stainless blade, brass bolsters and sandbar stag handle slabs. Comes with a boot/belt style clip sheath. Don't let your friends see it as they'll try to talk you out of it. The price is \$28.95.

PRECISE MOUNTAIN SHADOWS MODEL 10742 PINNACLE

The aesthetics of the Mountain Shadows series grabs you. The Pinnacle is a full tang 3 1/2-inch bladed utility pattern with black delrin synthetic handles. Both the "shadow stripe" and bolsters are nickel silver. A thong hole has also been added. The photo also shows the Precise laser carved model 10517 Partner. This is the same blade pattern as the Mountain Shadow Pinnacle but with a different handle configuration. The Pinnacle retails for \$48 and the Partner with laser carved handle for \$54.

D.H. RUSSELL RBK #2 BELT KNIFE

Another radical design that performs admirably as a field knife. The full tang RBK #2 has a 3 7/8-inch elliptical blade designed for dressing game. The knife has rosewood handles, the top of the blade (spine) is unsharpened to prevent pelt damage and grooves cut into the top of the spine prevent slippage. The #2 is very comfortable in the hand. Metal is high carbon steel and knife is accompanied by a pouch style leather sheath. Retail is \$36.

LEE BENCHMADE FIELD TRIO

And now for something completely different. Tommy Lee offers three field knives, a drop point, bird and trout, and skinner. What makes them so unique is

that they are made of Damascus steel, the cause of the swirling patterns in the metal. These are not for everyone but Tommy, obtaining his steel from the Fain Edwards forge in Alabama, has a more reasonable price than any other maker working in this metal. Another rarity among custom makers is that delivery is reasonably swift. If you will settle only for the finest write for Mr. Lee's catalogue. •

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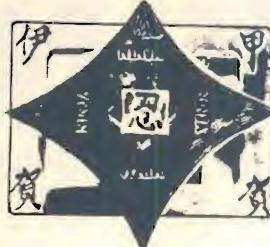
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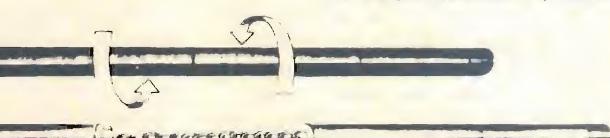
P-02A NJ Belt Buckle
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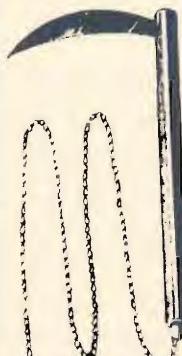
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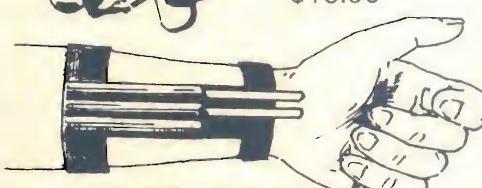
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Stitch In Time:

SEWING

In crisis or scarcity safety may come in the humble needle . . .

By Genie Dickerson

NO T ALL SURVIVAL gear rivals gold's cost and lead's weight. In crisis or scarcity safety may come in the humble needle. Even a jury-rigged needle and makeshift thread will do when a fabric tear lowers the drawbridge to serious problems.

Rips in packs or pockets may lose gear. Holes in sox cause painful blisters that become infected. A tent tear, popped button, or ripped-out shoulder seam invites cold and rain to enter the opening. The gaping clothing catches on branches. Broken straps force less efficient carrying. Undone pants hems dare hikers to trip.

The best needles for mending are *darners*, which have large eyes to accommodate heavy thread. Avoid embroidery needles, with large eyes but blunt points inappropriate for general sewing or splinter removal.

Use needles and thread of weight comparable to the fabric they are being used on. Get natural thread for natural fibers and synthetic thread for synthetic fibers. But in an emergency, anything is okay. Heavy duty or cotton quilting thread serves for all-purpose mending in wilderness crisis.

Unwind several yards from the spool and coil it. Pack the needle and thread together, with the point of the needle protected. Hollow handles of knives make good needle cases—you'll need the knife for cutting anyway.

Needles and thread can both be improvised. Form needles out of bailing wire or fish hooks, with the barbs ground down. Use a knife sharpening stone for the grinding job. A staple could also be bent into a needle of sorts.

Even a match stick can be carved into a serviceable needle. Remove the working end, whittle off the square edges, and sharpen one end into a point. Cut a small notch slanting toward the unsharpened end. (Figure 1.) This notch serves as the eye. It may have to be rethreaded with each stitch, but most jobs don't take more than a dozen stitches if the problem is caught early.

Fish line makes strong thread. Garment seams provide other thread. Just ravel a thread from an unfinished sleeve or pant leg seam (Figure 2).

If you have an unused patch pocket or one that doesn't need the strength of the usual two rows of stitching, undo one of the rows very carefully to salvage the thread (Figures 3 and 4).

Vines, roots, and animal tendons will work, too. Human hair rates highest of all as emergency thread. Especially if the hair is a good six inches long and medium to coarse in texture. Hair's strength and elasticity raise its value for some repair projects above that of any commercial thread.

Hair, though, is harder to hold onto. Nylon thread has the same drawback. The ends are likely to come undone unless extra care is taken. When sewing with hair or nylon leave a 2-inch end hanging at the beginning of the work and, when the stitching is finished, tie the original end to the new end. Knot them together at least three times.

For all other types of hand sewing where durability is the primary factor—except darning sox—knot thread at the beginning of sewing and knot end threads twice. Only with hair and nylon is it important to knot

the beginning and end threads together.

To make a patch to cover a hole, obtain a separate piece of material. Take an unused patch pocket off jeans or shorten a shirt hem and use the extra fabric for the patch.

Line up the grain lines of the patch with the grain lines of what it's being sewn to. Tuck the raw edges of the patch under at least 1/4 inch and sew it to the outside of the main fabric with a slip stitch (Figure 5). Keep the corners well tucked in. Use extra stitches there.

Sox—The most important thing to remember about darning sox is to not make the problem worse by forming stitches into a hard lump. For comfort and health, close holes by pulling the knit together as a smooth layer.

Begin with an unknotted single thread. Hold a rock or your free hand (for a darning egg) inside the glove during stitching. Run a couple of rows of stitches around the outside of the hole (Figure 6), then weave back and forth over the hole, securing loops of the knit and drawing the hole smaller (Figure 7). Don't pull the thread too tight or another hole will open up at the point of strain. Finish by doing one more row of stitches around the hole. Cut the thread without knotting it.

Seams that have opened up are relatively easy to fix. Use a back stitch here, with a double thread (Figure 8).

A double knotted thread also gives the necessary hold to a button. First put a match across the eyes of the button to increase the shank length. Starting on the wrong side of the material, bring the



Figure 10A



Figure 10B



Figure 11



Figure 12

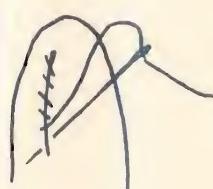


Figure 13

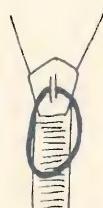


Figure 14

needle up through the fabric and one hole of the button. Cross the top of the button and match and then go into the button through another hole and through the fabric (Figure 9).

Repeat ten times for a two-hole button or six times for each set of two holes in a four-hole button. Pull out the match. Bring the needle between the cloth and the button. Wind the rest of the thread, still attached to the needle, around the button shank threads several times (Figure 10). Push the needle back down through the garment. Cut the threads and tie the ends together.

If a button has been lost, create a temporary one from a match stick or piece of smooth wood. Carve a hole in the center of the peg for thread, or just run the thread tightly over the match. An alternative would be to attach a string in place of the lost button and just tie it to the buttonhole.

For snaps, grippers, and hooks and eyes, remember to sew from the holes to the outside, not from hole to hole (Figures 11 and 12).

Gloves—To mend knit gloves, use the same darning procedure as for sox, and hold a stick or finger inside the finger of a glove to make sure two surfaces of the glove aren't stitched together, as the "darning egg" was used in sox.

Leather or woven gloves can also be repaired. Use over-and-over stitches in whatever way closes the hole (Figure 13).

Moleskin excels in fingertips of gloves to close holes and to prevent further damage. Turn the damaged glove inside out. Cut a 3/4-inch square of moleskin, peel off the backing, and apply the square to the inside of the glove fingertip. Turn the right side out and slip a finger into it to smooth down the moleskin and aid it to stick.

Zippers, Boots, Patches—Zippers generally take hard wear and sometimes pull apart from the garment. Resew zippers using the back stitch of Figure 8.

If a zipper tab comes off, run a short piece of wire or heavy thread through the hole in the slider, making a temporary pull (Figure 14).

Stoating cures small holes in woven woolens like old army fatigues and blankets. Stoating requires patch material

of similar type and weight. First trim off ragged edges of the hole. Cut a patch of the exact size as the hole. Tiny, precise stitches fasten the patch to the larger cloth (Figure 15).

If a strap of heavy webbing pulls off from a pack, restitch with an X inside a box (Figure 16). If nylon webbing begins to ravel, fuse the ends by melting with a candle or a match.

Even boots and shoes can be restitched with a heavy needle. Use a thimble or small piece of wood to push the needle through heavy leather, and keep the needle at a right angle to both leather and wood to prevent the needle from breaking. Make a temporary patch for boots and shoes from thin, hard bark cemented in place with pine resin.

Other sticky substances can be substituted for thread in temporary repairs. Chewing gum will stick to most fabrics well enough for a temporary hold. Adhesive tape and moleskin will close a fabric tear or sub for a button. Waterproof first aid tape holds even on plastic. Reusable safety pins are convenient.

Iron-on patches adhere solidly to fabrics without much nap, like canvas, denim, and duck. Even a skillet heated on a wood stove will fuse the patch. First round off the patch corners. Set the garment on a flat, heat-resistant surface. Aluminum foil, over and under the repair, keeps patch glue from oozing onto the pan and from sticking the pant leg together. Heat the patch for about 10 seconds. Let the garment cool before it's moved.

Use iron-on patches for holes in pockets, or sew by closing off the hole and making the pocket smaller (Figure 17). ●

In order of importance, a practical sewing kit contains:

- Darning needle
- Heavy duty thread
- Iron-on patches
- Extra buttons
- Waterproof tape
- Woven cloth for patching
- Safety pins
- More needles, a variety
- Different weights of thread
- Scissors
- Moleskin
- Snaps, grippers, hooks and eyes
- Thimble

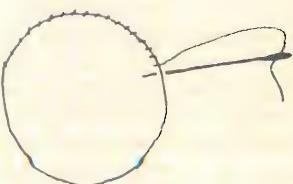


Figure 9

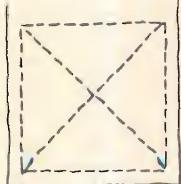


Figure 10

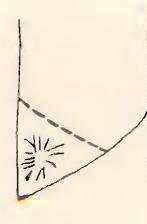


Figure 11

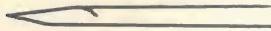


Figure 12

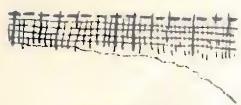


Figure 13

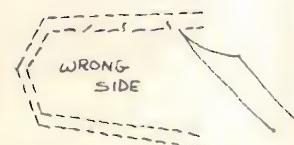


Figure 14

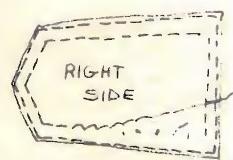


Figure 15

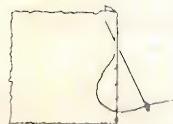


Figure 16

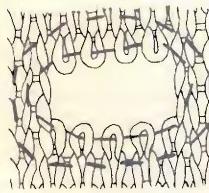


Figure 17

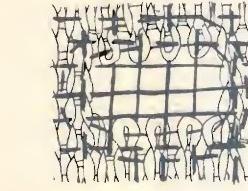


Figure 18

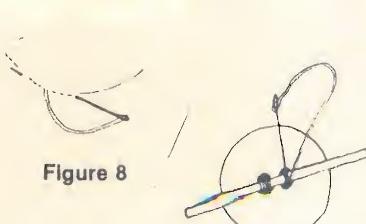


Figure 19

SURVIVAL



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SEASICKNESS

Continued from page 33

smaller vessel were considerably affected by what they were going through. Another vessel used in the same trial, a semisubmersible platform, about the same size as the patrol boat, created little motion sickness.

One of the main incentives in the recent U.S. research into motion sickness has been the prospect of a large surface effect ship (SES). This ship, which is something of a cross between a catamaran and a hovercraft, is fast and easily handled. Prototype trials have suggested that the SES would give a ride rather similar to that of a hovercraft with few problems arising from motion sickness. A lot of effort has been put into mathematical prediction of the motion of really large versions and in one test, when the motion of 2,000-ton SES doing 40 to 80 knots (simulated) in a sea state was applied to subjects for up to 48 hours in the Motion Generator the incidence of vomiting varied from 20 to 80 percent.

The Russian Navy is reported to be paying a lot of attention to seakeeping and seasickness, and their large number of men and ships at sea allows plenty of research. Senior U.S. naval officers are on record as saying that the Russians have apparently better seakeeping qualities in their ships and thus less adverse effect on crew performance.

So everyone agrees that there is a problem, that there is a need for more basic research on how to lick it, and that there can be a very real payoff in terms not only of greater efficiency but also personal comfort. What then is the actual mechanism of motion sickness and how can the new University of Southampton chair help?

Vestibular Apparatus—The actual mechanism of seasickness is not fully understood, although it is known that motion, or rather changes in motion, cause the problem by confusing the so-called vestibular apparatus. The vestibular organs or labyrinths of the inner ear provide the body with angular accelerometers which naturally respond to rotation or linear accelerations. The otoliths provide sensors of vertical motion and are sensitive enough to record even the gravitational pull of the earth. This equipment is always providing the necessary information to control posture and movement and clearly works well under certain conditions. Not surprisingly, however, if it is subjected to a massive and prolonged shake-up things begin to go wrong to an extent controlled by the nature of the disturbance. For example, a simple up and down lifting system may be enough to ensure that about half of the people exposed to it are sick

within 20 to 30 minutes, while exposure to cross-coupled forces may well make as many as 90 percent of those exposed sick within only a very few minutes. Cross-coupled forces are experienced when the body is rotated on a turntable with the head or whole body being rocked about a transverse axis so that the effect is one of sickening spiral dive or climb.

The whole subject is of course exceedingly complex and there are various interrelated factors such as the extent to which visual stimulation alone can create the symptoms of motion sickness even during the absence of motion. One of the best means of finding out exactly what happens is to thoroughly shake up a number of people and see what happens to them by recording their physical reactions and then analyzing the results. Attempts have been made in the past to do this with the large Motion Generator formerly located at Santa Barbara, but the equipment was not really sophisticated enough. By contrast, the special chair built at Southampton possesses a wider range of abilities and is fitted with various means of recording bodily symptoms such as heart, pulse and respiration rates as well as muscular activity. The output can be examined by computer, and without going into the actual construction and range of movements achieved by this one-ton monster it can be said that it will very quickly make a man feel as though his belly is about to drop out.

In addition to the sheer misery of motion sickness and the resulting effect on performance of such tasks as navigational plotting or reading data on screens in small dimly lit compartments, there is also an effect on manual task abilities. For example, the Royal Navy has looked into the effect of seasickness on ability to lift heavy objects or close watertight doors. Apparently aboard warships slipping is the most common form of injury, and there is an increasing tendency for the feet to slip when closing heavy doors against ship movement if the man involved is seasick. The same effect is experienced when pulling, but by far the most dangerous activity when seasick is lifting as it is almost impossible to maintain a suitable stance on a moving platform when affected by motion sickness. The big question, of course, is what can be done about it in terms of treatment?

Treatment—It is possible to take practical measures such as lying down, which probably works by removing the predominant vertical acceleration from the otoliths, and fixing the head and thus pre-

Continued on page 68



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EDIBLE ROOTS

Continued from page 60

tilla-like cake.

CAUTION: Both Yampa and Biscuit Root are members of the UMBELLIFERAE family which also contains poison and water hemlock. Positive identification should be made before using either of these plants. None of the Lomatium species or the Perideridia species is reported to be poisonous.

GLACIER LILY (LILIACEAE Erythronium pudica)

Other Common Names: Dogtooth Violet, Snow Lily, Adders Tongue, Yellow Fawn Lily, Fawnlily and Troutlily.

Habitat: Rich, moist soil—often in runoff areas. Glacier Lilies are often found poking through the snow before it is melted off. This species ranges from British Columbia east into Montana, south to Colorado and west to northern Oregon. Two other species, *E. albidum* and *E. americanum* range from Ontario east to Nova Scotia, south to Florida and west to Texas although they are not common in the Atlantic states. They generally favor wooded areas or are found in open adjoining stands of timber.

Flower: Seen from early April through August, Glacier Lilies have flowers ranging in color from white to deep yellow. Elevation: 5,000 to 12,000 feet, depending on latitude.

Size: 3 to 12 inches at the flowering stage, depending on species and soil conditions. The bulb ranges from 1/3 to 3/4 inches in diameter.

Edible Part: The entire plant is edible. The green parts and seed pods are delicious raw or boiled, and the bulbs are used most often boiled, roasted or eaten raw.

CAUTION: Some edible plant books state that if eaten raw and in quantity, *Erythronium* may act as an emetic. I haven't had a problem with this nor have any of my students who've used this plant, but it may be best to start slowly.

YELLOWBELL (LILIACEAE Fritillaria pudica)

Other Common Names: Yellow Fritillary.

Habitat: Early spring plant found among sagebrush and dry hillsides, into juniper mountains, quaking aspen stands and ponderosa pines. Yellowbells generally grow in large patches making them easy to gather.

Flower: The flowers are yellow and bell shaped as their name suggests, and depending on latitude and elevation can be found blooming from April to early June.

Elevation: 4,000 to 9,000 feet depending on latitude.

Size: At the time of flowering the entire plant is usually under 6 inches high. The edible flat corm is 1/2 to 1 inch in diameter with small bulbils near it.

Edible Part: The entire plant is edible raw or boiled. The stem often becomes tough when flowering. Seedheads may be eaten after flowering. The corms are eaten raw, boiled or roasted.

WATERLEAF (HYDROPHYLLACEAE Hydrophyllum capitatum)

Other Common Names: Pussyfoot, Woolen-Breeches, Cat-Breeches.

Habitat: Moist, rich soil. Often found in shade although it is also found in open forest areas, valleys and canyons from British Columbia to Alberta, south to Colorado and west to Oregon. There are eight species of *Hydrophyllum*—three occurring in the Rocky Mountain area.

Flowers: Depending on elevation and latitude, Waterleaf blooms from late April into mid June. Its flowers are purple. Elevation: 4,000 to 9,000 feet, depending on latitude.

Size: 3 to 15 inches when flowering. The most common size is around 6 inches. The roots range from 1/8 to 3/8 inches in diameter and are 2 to 6 inches long, hanging down in a fascicle of storage roots.

Edible Part: The whole plant is edible. The green leaves can be eaten raw, or boiled. The flower head can also be eaten raw or boiled. The roots are edible raw or boiled but care must be taken in washing as they tend to hold the dirt. As these roots hold a lot of moisture they are best boiled.

ONION (LILIACEAE Allium)

Other Common Names: Nodding Onion, Taper Tip Onion, Garlic or Leek.

Habitat: There are a reported 50 different species of wild onions in the Rocky Mountains alone. Onions can be found from the east to west coast of the United States, north into southern Canada and south into Mexico. Because of the many species they are found in a variety of habitats from sunny dry southern exposures, in the semi-desert sagebrush community, in meadows and shady creek banks, in the mountains, and in sunny dry areas of the plains. They are often found with sego lilies and biscuit root in the sagebrush communities on dry southern exposures in early spring.

Flower: Onions flower from early April to August, depending on the elevation. The flowers range in color from white and/or pink to deep purple.

Elevation: 2,000 to 10,000 feet, depending on latitude.

Size: 1 to 14 inches high when in bloom. The bulb ranges from 1/4 to 1 inch in diameter.

Edible Part: The whole plant is edible although the stem becomes too tough in some species after flowering. The plant and bulb can be used as flavoring in

soups and the bulbs may be eaten raw or roasted. Onions can also be dried for future use. The green plant itself may be used as a substitute for insect repellent by crushing the leaves and rubbing them on exposed flesh. The repellent must be replaced every 30 to 60 minutes depending on the ferocity of the insects. The dry seedheads, after staying into the winter, give a long gathering season if the ground is not frozen.

BLUE CAMAS (LILIACEAE *Camassia quamash*)

Other Common Names: Camash, Swamp Seagull.

Habitat: Generally found in wet meadows with standing moisture. Also found along streambanks. Usually in rich soil. Of the six species, all but one are confined to the west, ranging from British Columbia to Alberta, south to Utah and west to California.

Flower: The Blue Camas' blue blossoms can be found from the middle of April into June.

Elevation: 5,000 to 8,000 feet depending on latitude.

Size: 8 to 24 inches. Most common size is about 12 inches when in bloom. The bulb ranges from 1 to 1 1/2 inches in diameter.

Edible Part: The bulb of the Blue Camas may be eaten raw, baked, roasted or dried, although it is best when cooked in a steam pit. Camas grows in large patches where cultivation has not interrupted its normal habitat and it can be gathered in large quantities.

CAUTION: Extreme caution must be used to not confuse Death Camas with Blue Camas. If Blue Camas is always gathered while in bloom there should be no problem with identification as the small yellow-white flowers of the death camas in no way resemble the large spectacular blue flowers of the blue camas.

CHOCOLATE LILY (LILIACEAE *Fritillaria atropurpurea*)

Other Common Names: Purple Spot Fritillary, Tiger Lily, Leopard Lily, Purple Fritillary, Mission Bells.

Habitat: The 50 species of Fritillaria are scattered all over the northern hemisphere, three in the rocky mountains. It is found in damp soil, in open sagebrush, open woods and in the mountains. It ranges from Washington eastward to North Dakota, south to New Mexico and west to California.

Flowers: The brownish flowers appear from mid April to mid June, depending on latitude and are somewhat difficult to spot as the flower hangs down, hiding its color.

Elevation: 4,000 to 10,000 feet.

Size: 8 to 24 inches with the common size about 12 inches, depending on soil conditions. The starchy corm ranges from 1/2 to 2 inches in diameter.

Edible Part: The flat oval shape corm may be eaten raw, boiled or roasted. This plant seldom grows in patches, making it difficult to gather in large quantities and because of its dull colored flower, is often passed, unseen.

GENERAL CAUTION: Blue Camas, Sego Lily and Onion may be confused with Death Camas (*Zigadenus*). The Sego Lily bulb will have only four rings when the bulb is cut horizontally whereas Death Camas has multiple rings like the onion but it does not smell like an onion. Make sure the onion smell is not coming from your hands (after gathering onions) when checking bulbs. Blue Camas must be harvested when in bloom to be absolutely safe from confusion with Death Camas. Also, Poison Hemlock and other poison members of the Umbellae family can be confused with Biscuit Root in their early stages of growth and positive identification is a must. Do not gather along roadways, ditchbanks or fields where pesticides or herbicides may have been sprayed.

PREPARATION

Depending on the variety, species and elevation where underground edibles are obtained, most will be small in size compared to what we are used to gathering in our gardens and grocery stores in terms of carrots, turnips, potatoes, etc. The edibles are generally best flavored when roasted (See "Cooking Without Utensils," *Survival Guide* June 1983, page 32) although some, like Blue Camas, are best cooked in a steam pit.

Two easy methods of preparation to preserve roots for later use are:

- Roasting and drying which allows roots to be eaten as is or reconstituted and used on the trail without much preparation.

- Making "root cakes" (cous as the Shoshone Indians called them) by roasting the roots, mashing them together in cakes similar to tortillas and then drying. These can also be eaten as is or reconstituted by placing in water and/or adding to stews and salads, etc.

With the proper knowledge, the wild food forager can begin gathering in early spring and continue into the fall safely. Plants should first be identified during their flowering stage then watched throughout the year to learn their specific characteristics and to be able to identify them throughout their growing season.

Some plants (i.e., Sego Lily and Onion) maintain dried seed pods into the winter and even on into the next spring, depending on the snowfall and severity of the winter, making it possible to gather these plants if the ground isn't frozen, throughout the year.

Whether for fun or an emergency situation, the ability to gather wild foods and to be self reliant gives one a feeling of pride and security. The ability to harvest wild plants can be key to survival in any long term survival situation. ●

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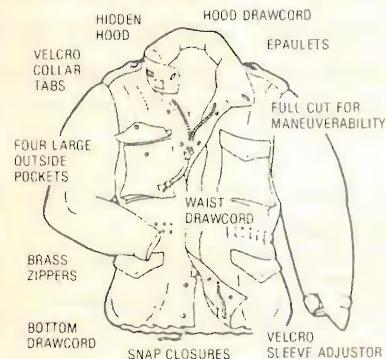
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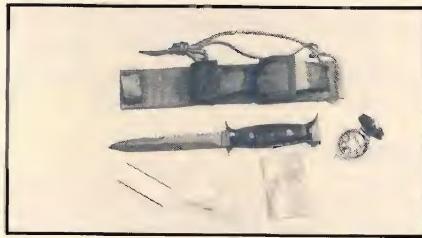
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SEASICKNESS

Continued from page 65

venting unpleasant effects. It is well known that activities which demand flexion and extension of the head on the neck while the body is exposed to linear acceleration or rotation are disorienting and nauseating.

Similarly, sitting down with the back of the head against a bulkhead will tend to have a steady effect and thus limit sickness.

There is a theory that motion sickness is caused by a "neural mismatch" which basically means that a man standing by the rail gazing at a heaving sea will be more affected than a man staring at the relatively motionless horizon. If this is the case it may be possible to provide artificial horizons in addition to controlling position of men engaged in critical tasks by means of head rests and so on.

Certain attempts to reduce motion input, such as installation of gymbal mountings and moving seats, have already been tried in a relatively crude form without much success, but there is also drug treatment.

The first scientific use of drugs occurred during the second world war when it was found that hyoscine (scopolamine) was the most effective treatment although it caused side effects such as dry mouth, interference with vision and a slightly drugged feeling so that the user was less inclined to work. In general, hyoscine compares well with other drugs such as the anti-histamines, but there seems to be no advantage in combining drugs. They do, however, have one important use—suppression of seasickness in a liferaft under really diabolical conditions. Hyoscine should be used for the worst suffering and the anti-histamines for less affected personnel.

Three years ago a Canadian company introduced a new idea which has been found to be reasonably effective. It is a small plaster patch which is stuck to the skin behind the ear to supply scopolamine through the skin to deaden the nerve fibers of the inner ear. The theory is that when the balance system is thrown out of true the activity of the nerve fibers increases in an attempt to compensate with resulting sickness and nausea. A pair of patches is claimed to provide 72 hours relief, the only snag being that there is slight dizziness and sensory distortion.

All other approaches, such as fitting of fin stabilizers and modification of ship characteristics, will have to line up with these possibilities for final consideration when the results of the Royal Navy research program are finalized, which depends on enough volunteers being found to man that crazy chair. Lord Nelson, a chronic sufferer from seasickness, was willing to die for his country, but who is willing to be seasick for it without dying? •

CHEMICAL WARFARE

Continued from page 27

be separated. The opposition could easily pick off the officers—they're the only ones whose masks have a voice meter. Now, I understand, the Polish Army is looking for a replacement mask similar to our M-17s and the Soviets themselves are considering purchase of Swiss-made units."

"Likewise," he continued, "Soviet protective suits are real pressure cookers too. Their heavy butyl rubber makes it difficult for the body to breathe. They use the suits a lot in physical training and exercises to get them used to high temperatures. Regardless, in combat, they'll suffer many heat casualties. In contrast, our suits are lighter, two pieces and charcoal lined."

Attached to the 18th Airborne Corps, a rapid deployment force unit, Spec. 4 Johnson accompanied the engineer battalion on the Grenada Rescue Mission. "With intelligence reports that they might employ CS gas, we carried full NBC equipment—masks, protective suits and radiair meters. As the men cleared the air strip, we did area contamination surveys, but no traces of gas were found. Eventually, we uncovered 10 crates of Soviet masks and canisters in a government storage area."

Sgt. Jack Robinson is one of the seven Marine Corps instructors at the Chemical School. "We study separately, tailoring the courses to the Corp's particular needs. We follow Army tactics on land and Navy while at sea. Likewise, we employ the Navy's Mark-5 mask and the Army's M-17."

Marine curriculum includes chemical agents, area surveys, warning and recording systems, biological defense, clothing and equipment. Grads return to home units as "chemical warfare defense specialists."

Training Exercise—It began drizzling as we approached a wooded training area at the fort as huge, billowing clouds crawled along the ground then rose skyward. A row of protective-suited and masked soldiers attended generators that spit out the obscuring. The wind continued in a steady direction nicely guiding the smoke towards an imaginary enemy.

"They're smokies and what we're practicing is use of obscurants in a tactical situation," explained instructor Staff Sgt. John Richardson, a 12-year Army vet. "The smoke can mask friendly forces' movements, or slow up and confuse the enemy. It can also deceive him. Is there a chemical agent in it?"

The ability of modern optically guided weapons to pinpoint battlefield targets led to a rebirth of the oldest of chemical warfare technologies—smoke-produced from low-grade oil on an M3A3 generator. The ancient Romans set grass fires to cloud their movements but modern methods

have existed since WWI. Now to meet special needs, the Army is activating smoke-generator companies and a battalion.

The wind changed direction and suddenly I was enveloped in a solid whiteness unable to see anything six inches away. One automatically panics and gasps for breath while seeking clear air. But there was none until the wind shifted again.

Smiling gently, the sergeant explained, "It doesn't bother the eyes or breathing, but it does disorient you. I can save your life in wartime without firing a shot. Smoke is just as good as an artillery round to defeat the enemy."

"I worked for a year at the National Training Center with the Opfor (opposition forces)," he continued. "During exercises, I turned on the machines and we moved right along while the other guys were unfamiliar, confused by it. When we shut them down, they appeared before us like sitting ducks."

In wartime, smokies would set their machines 35 to 70 meters apart. Once started, they move back to a defensive sector, covering their rear from enemy fire.

Smoke was used in Vietnam, but for security purposes to obscure equipment and runways from enemy artillery and mortar rounds. While not suited to small-scale guerrilla actions, it was effective against large columns during the Korean War.

"There're smoke units at 5 posts now: Ft. Hood, Irwin, Bliss, Lewis and Polk," Sgt. Richardson noted, "and the Army seems committed to the idea. We're growing. You'll hear more about us."

Overview—I visited the headquarters building and Deputy Assistant Commandant of the Chemical School, Lt. Col. Joe Foster. A 21-year-vet, he'd served as NBC officer with the 8th Army in Korea. He gave me an overview of Chemical Corps operations.

After poison gas usage in WWI, in 1920 the Army created the Chemical Warfare Service School at Edgewood Arsenal, Maryland. A year after the outbreak of the Korean War, it moved to Ft. McClellan where it remained until 1973. Then, during a period of disarmament, it was closed, based on a perceived lessening of the NBC threat. From 1973 to 1979, only a small

Continued on page 70



These soldiers are using special kits to help them identify harmful substances in the air about them.

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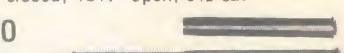


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CHEMICAL WARFARE

Continued from page 69



Protective booties are part of the clothing required for NBC warfare.

chemical section was attached to the Ordnance School at Aberdeen Proving Grounds, Maryland.

Out of the Israeli Yom Kippur War victory came tens of thousands of tons of Soviet-supplied equipment, eagerly examined by Western intelligence. They were impressed with tank and armored personnel carriers, filters and overpressure systems to keep out toxic agents. Also learned was that Soviet nerve gas antidotes were superior to those issued U.S. troops. And, it was found the Russians had effective systems for detecting and identifying chemical agents.

In 1979, the school was reopened at Ft. McClellan and has been growing ever since. By February 1984, the 892-member staff almost trebled the figure back in 1979. February 1983 enrollment of 3,800 shot up to 5,500 just a year later. And budgets now allowed for more research and expansion of facilities.

"Currently, we're training students with chemical simulants like molasses, skunk oil and tear gas," the Colonel explained. "But our new, \$10 million Chemical Training Decontamination Facility will permit use of small doses of the real thing. We'll contaminate areas and equipment with HD mustard gas and GB and VX nerve agents, and let students operate in this atmosphere. The Russians did this for

Continued on page ??

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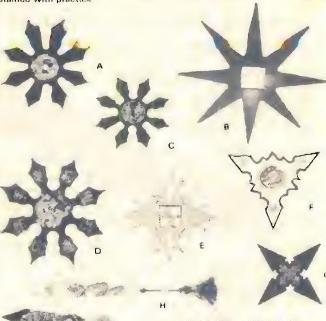
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FRESHWATER FORAGING

Continued from page 58

some alterations to prevent this. In most live bait situations, let the fish run off a bit of line, wait for the pause, and then set the hook when the runoff continues. Also, "aim" the trigger mechanism (on vertical tilt fixture) into the wind to prevent it from tripping.

Ice jigging is essentially a vertical presentation of an artificial jig, plug, or jig bait offering (i.e., small metal jig rigged with a perch eye, lake trout "airplane" jigs displaying hunks of fish flesh). Compact rod and reel combinations are available to deliver such devices. Line test can vary from 4 pounds up to about 12 pounds, depending on size of pursued species. Two effective ice fishing lures recommended are the vertically fished Rapala (hand made plug from Finland) ice lure, and the ever productive Swedish Pimple, an ice jig of metallic construction, available in numerous sizes suitable for 8-inch trout/perch, upward to mamouth lakers. The crippled fish flutter and erratic swimming pattern imitated by these two lures surely fool the fish almost as good as live bait. Of interest to the survivalist is the lack of storage hassle, as these "baits" are artificial. They can be readily fished anywhere in the water column (from the water surface-ice level down to the depths-bottom) depending on the targeted fish preferred habitat. Other jig/bait combos include the use of various worms and grubs.

When fishing lakes, ponds, and other waters that support reasonable ice covers, try a variety of locales about the surface in an attempt to find fish concentration areas. If it is the first hard freeze of the season, try suspending the bait along the edge of weed beds and other underwater structure (stumps, rocks, sunken brush, etc.). Later in the season as the ice thickens (and is covered), try near the vicinities of inlet streams—the thickened ice rapidly diminishes the oxygen production of submerged aquatic plants. Streams entering provide higher oxygen levels that enhance fish feeding activity. At all times, check the thickness of the ice.

If oxygen levels are suitable, the deeper holes and channels are recommended to try for largemouth bass and associated fish. These deeper areas usually have water temperatures slightly warmer than surrounding areas due to the characteristics inherent in cooling waters. Here the fish tend to congregate after the freeze-up. A local mill pond has consistently produced for me bass from 4 to 6 1/2 pounds every season. The actual site is the deepest hole along a river channel.

Chain pickerel and pike can range from the edge of dropoffs, to a mere foot of water among the emergent weed beds. A fishing associate caught an 8-pound pike from water that struggled to hit the one-foot mark. Generally speaking, try water

depths from 3 to 10 feet for these freshwater barracudas.

Medium and large trout (some chars and salmon) prefer all depths, but concentrating one's efforts at the 10-foot mark and working deeper has its merits. The usual procedure is to fish within a reasonable distance of the "ice cap," or within several feet of the bottom contour.

In addition to using pond depth charts and portable electronic sounders, a careful observation of surrounding topographic features can indicate what physical features are present below ice-covered waters. For example, a stream bed usually extends itself into the pond, or a rocky point might do likewise. Study the adjoining land and try to mentally extend the visible features below the ice's surface.

Basic depth soundings can be accomplished by using a 1- to 2-ounce sinker on a line. On the actual tilt line, a common button is placed—line through two opposing holes—to act as an adjustable line depth marker. Simply slide it up or down.

Net fishing, haul seining and gill netting can be accomplished through the ice with a little effort. Primarily deployed on frozen sections of slow moving rivers, the netter employs the slow moving stream current to spread the net under the ice.

Safety gear for ice fishing should include "ice creepers" to give spiked traction while tending gear, "ice safety picks" to pull oneself out if ice gives way (tie 'em around one's neck on stout cord, one for each hand. Picks can be fabricated from stout sharpened nails sunken in drilled dowels or 6- to 8-inch sections of hand tool handles. Makeshift ones can be screwdrivers or rigged ice picks. A section of rope and a throwable cushion life jacket are also recommended.

Other "human" gear should include insulated packs (foot wear), the ones with felt liners and rubber outers; various underwear ranging from poli pro, Damart, woolies, etc., and sufficient intermediate clothing layers (sweaters, vests) topped off with a hooded, wind-resistant parka. Gloves, mittens, and knitted head gear are also recommended to deter the cold. Polarizing sunglasses aid in controlling the reflected glare (ice and snow on sunny days).

Live bait can be transported via pails or specially designed aerating bait buckets. Spearing fish through the ice is also feasible for pike, large trout, etc. Use either a live bait or specially designed hookless decoy (vertically jiggled plug that imitates a wounded fluttering bait fish) to bring the targeted fish within reach. Create a larger hole (2- by 2-feet square holes vs. 5- to 8-inch diameter holes for tilt use) and keep spear submerged—ready for the jab. Multi-tined spears are preferred (with barbs). ●

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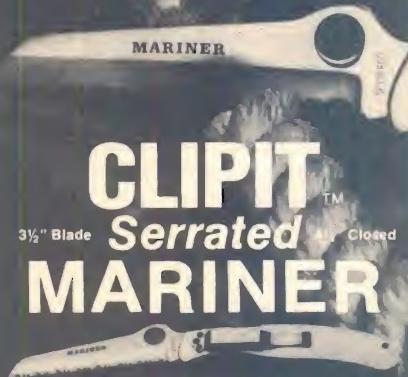
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Metabolic Demands:

NUTRITIONAL REQUIREMENTS

Effective and sustained weight control and nutritional balance are achieved with a diet low in empty calories . . .

By William Conti

SURVIVALISTS, through their activities, make special metabolic demands on their bodies, and they must be physically prepared to meet these demands. These demands call for the repairing of damaged tissues, the recuperation of fatigued muscles, and the regeneration of energy, and they all necessitate a balanced and adequate diet.

We are all faced with constant new developments in the field of nutrition. As a result of biochemical research and the staggering amounts of advertising claims and counterclaims, one finds it difficult to make sound judgments.

There is no quick and easy way to maintain a certain weight, or reduce weight. It involves a renovation of eating habits. Effective and sustained weight control and nutritional balance are achieved with a regular eating pattern on a diet which is low in empty calories while being nutritious. To determine if a diet is well balanced nutritionally, it must incorporate foods from each of the basic four food groups; meats, milk, fruits and vegetables, and breads and cereals.

Meats should be baked, boiled, broiled, or roasted. Avoid fried, scalloped, or creamed food, unless a fat is allowed in your particular meal. Meats prepared in oils, butter or margarine can add up to 200 calories to that meat. Proper dieting is proper counting of calories, proteins, carbohydrates, etc. One ounce of meat has approximately 7 grams of protein and 75 calories. Remember to trim fat from meat, poultry and fish.

Choose meats carefully. Cut down on cholesterol intake, replace red meats, like beef, with chicken, turkey or veal. Avoid sausage, smoked meats, lunch meats and organ meats like liver, kidney and brains. Fish has a very high nutritional value and is usually low in cholesterol. However, shrimp and certain other shellfish are high in cholesterol. High cholesterol is a risk factor in heart disease.

Egg yolks are very high in cholesterol. Try replacing some of your morning eggs with bran and fiber cereals, or nuts and fruits. Also use caution in eating high-fat cheeses and ice cream. They can be replaced by cottage cheese, low-fat yogurt and ricotta cheese.

Meats provide needed protein for building and maintaining body tissues, iron for

metabolizing energy, and 13 vitamins.

In addition to their building and repairing properties, food proteins have considerable importance in maintaining the body's ability to resist infections and to effect good healing.

A woman needs about 46 grams of protein a day, and a man, weighing about 160 pounds needs at least 60 grams. But a woman participating in hard physical work or exercise needs about 70, and a highly active man may need as much as 110 grams of protein a day.

Listed below are 20 top foods high in protein but low in calorie content.

FOOD:	CALORIES:
Supplied in 7 grams of protein.	
1. Shrimp	33
2. Lobster	34
3. Scallops	37
4. Hamburger	38
5. Catfish	41
6. Perch	43
7. Chicken, light meat	43
8. Cod	44
9. Turkey	44
10. Flounder	47
11. Halibut	48
12. Tuna	48
13. Salmon	49
14. Chicken, dark meat	51
15. Spinach	55
16. Cottage Cheese	56
17. Broccoli	59
18. Brussels Sprouts	60
19. Artichokes	62
20. Skim Milk	70

In other words, you would have to eat 59 calories of Broccoli to receive 7 grams of protein.

The milk group contains calcium, phosphorus, protein, riboflavin, and vitamins A & D. They build and maintain healthy bones and teeth, and help to build and repair body tissues and convert food into energy. For the sweet tooth, baked custard is a fine source for these nutrients.

Vitamin D is manufactured by the body through absorption of sunlight primarily, but milk, eggs, cod, tuna, halibut and butter do aid in the supplementation.

An important nutrient found in vegetables is Vitamin A, which is essential for cell building, and is a factor providing for skeletal growth, teeth formation, and for-

mation of epithelial tissue composing the skin, mucous linings of the digestive, respiratory, genitourinary tracts and the sinuses. It aids in keeping up resistance to infections, and helps to maintain normal vision and night vision. Better peripheral vision is also a benefit of Vitamin A. Cod liver oil is a very good source of Vitamin A.

Vitamin C, ascorbic acid, is largely found in fruits, tomatoes, green peppers, and broccoli. It plays a significant role in the strengthening of skin, tendon, bone, gums, teeth, cartilage and other connective tissues. There also seems to be a relationship between Vitamin C and the production of the adrenocortical hormones, especially with reference to the pituitary gland.

Since Vitamin C is freely soluble in water and heat-sensitive, cooking can easily render it ineffective. Therefore, vegetables and fruits containing this vitamin should be prepared at low heat with a minimum quantity of water.

Carbohydrates are the principal nutrient in bread and cereal. They are composed of organic compounds containing carbon, hydrogen, and oxygen. During exercise, the complex sugars found in these foods are broken down into simple sugars for ready absorption by the blood and the tissues. The surplus is stored in the liver and muscles as glycogen, which can be readily used when exercise requires it.

Carbohydrates are considered the primary body fuel which supplies energy for the body and its functions, and contributes to the digestion of foods. A deficiency causes fatigue, and disturbs the delicate balance in the body of water, potassium, sodium and other nutrients. Other sources of carbohydrates are sugar, sweet fruits, potatoes and nuts.

Cooking these foods in large amounts of water, presoaking and pouring off water before or after cooking reduces the amounts of nutrients. If foods are prepared with only a small amount of water added, and cooked for only a short time, more nutrients will be retained in the foods.

If fats are needed for cooking, prepare foods with corn, cottonseed, safflower or soybean oil, and choose margarines which are polyunsaturated. Remember, we are not talking no fat diets. Fats are still considered a basic source of muscular energy,



entering the picture when the carbohydrate levels are depleted.

Don't forget the peels and skins of fruits and vegetables, they have a heavy concentration of nutrients. For example: the potassium content of potatoes will be higher if the skin is not removed.

Salt—Enjoy the natural taste of foods. Cut down on salt in cooking and at the table. There is evidence that too much salt in the diet increases our risk of developing high blood pressure. Table salt is a compound made up of sodium and chloride. It is the sodium that causes the problem. While the body needs sodium, most of us eat more than we need. This extra sodium must be removed through the kidneys, but it must first be diluted with water. The extra water volume in the blood needed to carry the sodium causes extra pressure in the blood vessels, thus raising blood pressure. Use lemon, herbs, and spices in place of salt to enhance foods. Oregano, tarragon, caraway seeds, allspice, mustard seeds, vinegar, garlic, sage, rosemary, nutmeg, cinnamon, fennel, parsley, curry, and pepper are all very good seasonings, and easily carried in the field.

Go easy on packaged and processed foods such as soups, hot dogs, bacon, sausage, gravies, cheeses and fast foods. One Big Mac has the equivalent of 3/4 teaspoon of salt and 540 calories.

Let's take a quick look at fiber in the diet. The body needs fiber to create bulk in the intestines to help carry away waste materials. The bulk provided by foods with high fiber content also keeps one from feeling hungry. The best sources of fiber are

whole grain cereals and bread, also apples, potatoes, carrots, beans, nuts, and seeds.

To nutritionally maintain a desired weight per day the following is recommended (Approximately 2,500 calories).

MEATS

(fish, poultry, lean meat, or eggs).

6 ounces.

MILK

24 ounces

4 slices of cheese

FRUITS & VEGETABLES

8 ounces of green or yellow vegetables

2 fruits

4 ounces fruit juice (natural)

small salad

BREADS & CEREALS

4 slices of wheat bread

12 ounce of pasta

12 ounces of bran cereal

To nutritionally reduce to a desired weight per day, the following is recommended (Approximately 1,200 calories).

MEATS

(fish, poultry, lean meat or eggs)

4 ounces

MILK

16 ounces of skim milk or low fat

a slice of cheese

or 1 cup of plain yogurt

FRUITS & VEGETABLES

1 fruit

1/2 cup of green or yellow vegetable

small salad

BREADS & CEREALS

2 slices of wheat bread

8 ounces of pasta

8 ounces bran cereal

These are only guides. When choosing low caloric alternatives avoid processed sugar and fats, and do not exceed the recommended serving. This will enable the majority of people to lose and maintain a desired weight nutritionally. But if additional calories are needed for persons engaged in heavy physical activities, bread, and fruit consumption can be increased, along with small servings of natural peanut butter, honey, soft drinks, salad dressings and margarine or butter.

The caloric needs of a body depends upon the basal metabolic rate (BMR), and the amount of activity above that level. Basal metabolic rate is the amount of calories needed to sustain life at its lowest activity level. A typical daily BMR for males is about 1,800 calories, and for females is about 1,400. The amount of daily activity, physical exercise and work beyond the BMR, determines the specific daily caloric requirement. Every pound of body fat contains 3,500 calories. In order to lose one pound of fat, you must burn up 3,500 calories in addition to what your body needs.

To begin your diet, be it to lose or gain weight, start reading labels on foods to determine the amount of calories, proteins, carbohydrates, fats, sodium, vitamins, and so on contained in the foods you eat. Only in this way, and through proper and daily exercise can you sustain a nutritional balance in your life. ●

Unique:

SURVIVAL VESTS

Bright orange or reversible woodland-orange camo pattern vests feature special material and pocket design . . .

Staff Report

RIGHT—This vest is reversible with woodland camo pattern on one side and camo orange on the other.

BELOW RIGHT—The woodland camp pattern on the reversible vest blends in well with surrounding foliage.

BELOW LEFT—The solid orange vest makes the wearer highly visible and has a large pouch pocket on the back for carrying game or gear.

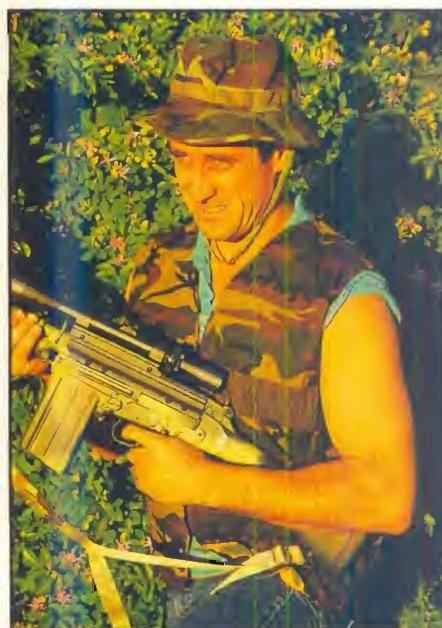
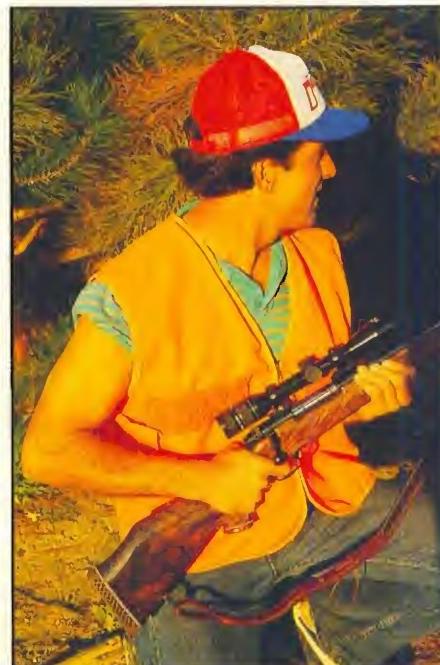
IF YOU'RE LOOKING for high visibility while hunting or backpacking, you're not going to find many items that will make you stand out as well as these new vests from Frontier Survival Industries.

One vest is fluorescent orange completely with a large pouch pocket on the back for carrying game or gear, while the reversible model features a camo pattern of greens and browns on one side and a fluorescent orange spotted with camo patterns on the other. Designed to be worn over existing garments, the vests incorporate unique placement of pockets. Velcro secured, the pockets are placed to provide maximum comfort with a minimum potential for obstructing arm mobility.

The vests are fabricated of a material which features what the manufacturer calls "quietness." The material has an inherent ability to diminish noise made by incidental contact with bushes, trees and other obstacles. The material is waterproof, windproof and mildew resistant.

Surpassing visibility standards set in all of the U.S. and provinces of Canada, the highly fluorescent material is also exceptionally rugged, resisting rips and tears from those occasional hang-ups.

A survival kit is being considered for optional sale with the vests. The solid orange model sells for \$29.95 postpaid and the reversible vest is \$39.95 postpaid. The vests can be ordered by calling toll free, (800) 237-6360, extension 225 in the continental U.S. except Florida. In Florida, call (800) 282-1152, extension 225. For more information, contact Frontier Survival Industries, Dept. ASG, 1358 Tiber Ave., Jacksonville, FL 32207. ●



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